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ABSTRACT

One of a series of student booklets on the Canadian environment, this unit presents Canada from a geomorphological perspective of the six major regions: the Western Cordillera, the Interior Plains, the Canadian Shield, the Far North, the Great Lakes-St. Lawrence Lowlands, and Appalachian Canada. Intended to help secondary students understand the major physical features of each region, the booklet also focuses on where Canadians live and how the land has influences upon the people within a region and upon their attitudes toward people in other regions. Following a brief introduction, class activities intended to correspond to the booklet's remaining chapters are provided. Each chapter focuses on a major region, presenting a brief description of the region and maps showing annual precipitation, average January temperatures, average July temperatures, frost-free days, natural vegetation, physical characteristics, urban population centers, population distribution, and soils. Graphs showing precipitation and temperatures for each month conclude each chapter. (LH)

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UNDERSTANDING THE CANADIAN ENVIRONMENT

CANADA

A REGIONALLY DIVERSE AND NORTHERN ENVIRONMENT

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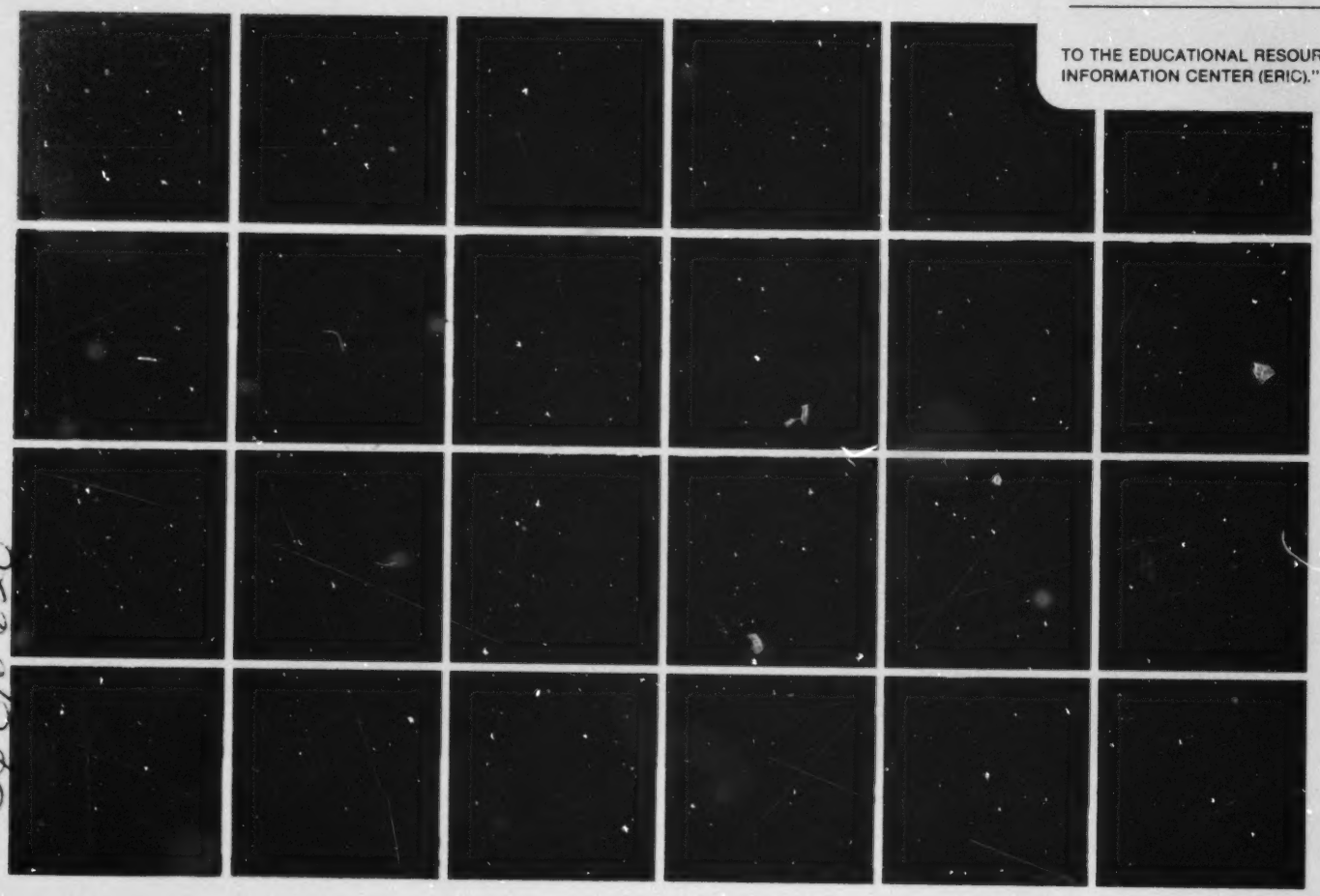

SO 016 620

CANADA

A REGIONALLY DIVERSE AND NORTHERN ENVIRONMENT

Rex B. Brown
Thomas S. Green
M. Scott Roebotham

The Canada Studies Foundation

Established in 1970 with individual, corporate and governmental support at both provincial and federal levels, the Canada Studies Foundation, currently funded by the Department of the Secretary of State, has actively promoted mutual understanding among the diversity of peoples in Canada. With the conviction that schools can and must provide a knowledge base to help young Canadians become more informed and more active citizens, the Foundation has supported teachers across Canada in the development of books and other learning materials that assist students in one part of Canada to learn more about their fellow Canadians in other parts of our vast country.

This is one of fourteen units being prepared under the series title *Understanding the Canadian Environment* by Canada Studies Foundation: Atlantic Centre.

Project Co-ordinator: Derek Hounsell

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This phase of the work of the Canada Studies Foundation grew out of Hodgetts and Gallagher's *Teaching Canada for the '80s. Understanding the Canadian Environment*, the works of the Atlantic Canada Centre, attempts to translate the concepts of Chapter Four, *'Teaching the Canadian Environment'*, into curriculum materials for the junior high school. The authors are greatly indebted to Hodgetts and Gallagher for their profound insights.

Canada: A Regionally Diverse and Northern Environment is particularly grounded upon Doreen Tomkins' *Canada: Land of Physical Diversity*. Many have helped along the way. Derek Hounsell, Atlantic Canada Project Co-ordinator, had faith in us to begin with, assisted us whenever called upon, and tolerated, in good humour, three aspiring authors. We also wish to thank Bob Anderson, Director of the Canada Studies Foundation, for his enthusiastic support. Ches Sanger and Gordon Handcock (both from the Geography Department at Memorial University) made useful criticisms of our manuscript. Catherine Maggs, more than anyone, made us believe in ourselves as curriculum developers. Ralph Kruger, whose *Canada A New Geography* we acclaim, sent us a letter of encouragement. Bruce Burton was most kind to pilot our materials in his Canadian Issues classes at Herdman Collegiate. Similarly, Clarence White, Lloyd Mercer and Foster Lamswood proved themselves administrators who care about curriculum. We have a special vote of thanks to Marion Blanchard, our typist, for her speedy work. Our wives (Thelma, Elaine and Sandra) were totally supportive even though it meant shouldering so much more themselves.

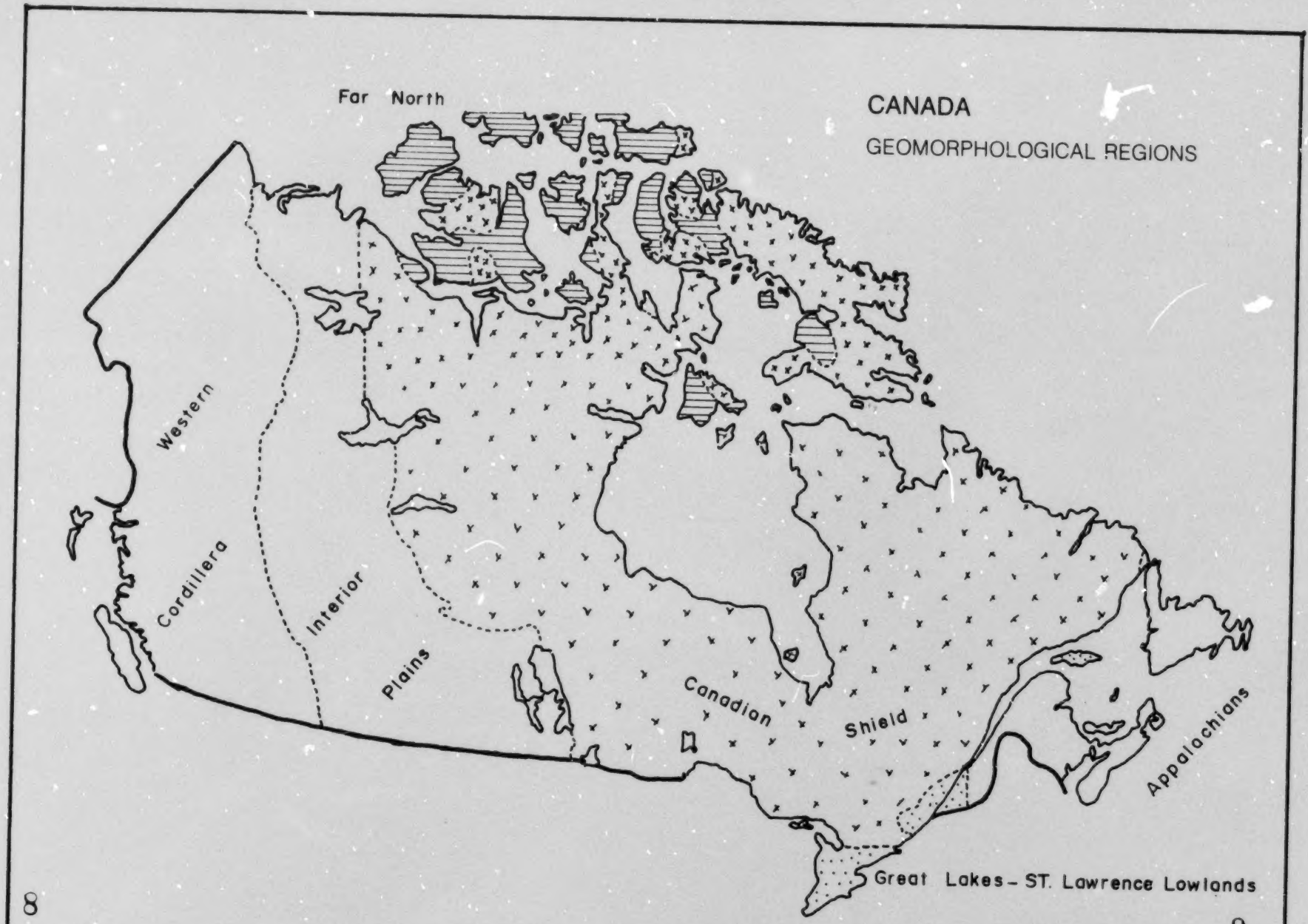
Our dedication is to our children who will study Canada in the junior high school someday soon: Anthony, Wendy, Matthew, Jill, Jane and Jim.

1 INTRODUCTION

Canada is almost ten million square kilometres in area. Modern jets require eight hours or more to fly from St. John's on the Atlantic shores to Victoria on the Pacific. The most southerly parts of Canada are closer to the Equator than to the North Pole. Within this vast country lie many varied landscapes. Certain physical features dominate the view in parts of Canada, while quite different ones appear elsewhere.

Geographers find it useful to label an area with similar features a region. The vastness of Canada allows many possible divisions. This study views Canada from a geomorphological perspective, with six major regions: Western Cordillera, Interior Plains, Canadian Shield, Far North, Great Lakes-St. Lawrence Lowlands and Appalachian Canada. (Geomorphology is the study of landforms, dealing largely with the four fluid agents of running water, waves, glacial ice and wind, which together erode, transport and deposit mineral and organic matter.)

The unit aims to help you understand the major physical features of each region. It also focuses on where Canadians live and how the land has influences upon the people within a region, and upon their attitudes toward people in other regions. Your awareness of these aspects of the Canadian environment will help you to know better the country in which you live.


CANADA
GEOMORPHOLOGICAL REGIONS
Far North
Western
Cordillera
Interior
Plains
Canadian
Shield
Appalachians
Great Lakes - ST. Lawrence Lowlands

8

9

2 CLASS ACTIVITIES

Exercise A

Canada is a vast country. Each of the six regions covers a larger area than many countries. This exercise is designed to increase your knowledge of the physical features of Canada. When all six regions have been studied you will be in a position to compare the combination of physical environments that create the setting for our Canadian lifestyles.

Your teacher will assign you to one of the six regional groups. Each set of materials contains a description of a region, as well as a series of maps and climatic graphs. Since you will need to use all these materials to complete the exercise, we suggest that you and your group give some thought as to how to work together with the most efficiency.

1. (a) What is the height above sea level of the lowest area within the region?

   (b) What is the approximate height above sea level of the highest area within the region?

   (c) Which contour interval covers the largest area of the region?

0 - 100 m	1 000 - 2 000 m
100 - 200 m	2 000 - 3 000 m
200 - 500 m	3 000 - 4 000 m
500 - 1 000 m	4 000 - 5 000 m

2. (a) Which term would best describe the terrain within the region?

   — mountainous;
   — hilly;
   — plains;
   — barren.

   (b) Study the region's drainage network. Are there many lakes, few or none? If there are lakes, are they very large, large or small?

   (c) Look at the river systems within the region. Are there many rivers, few or none? Are the rivers long or short?

   (d) Are there many harbours and bays, few or none?

3. The following figure grades soils from poor to good. The grading relates to suitability for growing crops.

SOIL SUITABILITY FOR AGRICULTURE

Poor Soils
Podzol
Rocky and Stony
Peat and Podzolic
Tundra
Alluvial Rocky and Stony Phases
High Lime

Fair Soils
Alluvial
Degraded Black
Grey Wooded
Clay Belt Podzolic
Podzolic Grey Brown

Fair/Good Soils
Grey Brown Wooded
Pacific Coast

Good Soils
Brown
Dark Brown
Black

(a) Approximately what percentage of the soils in the region are suitable for agriculture (i.e. fair soils or better)?

80 - 100%	20 - 40%
60 - 80%	5 - 20%
40 - 50%	less than 5%

(b) Where in the region are the suitable soils located?

— throughout;
— northern, southern, eastern or western part;
— a few selected areas;
— nowhere.

4. (a) What is the approximate percentage of the amount of each of the following types of natural vegetation within the region?

— tundra, forest and barrens, subarctic;
— coniferous forest;
— deciduous forest;
— mixed forest;
— grassland.

(b) People have altered Canada's natural vegetation. Which statement best describes the extent of the changes made to the region by Canadians?

— almost all the natural vegetation has been removed;
— the natural vegetation has been affected but still looks much the same;
— the natural vegetation in the most part has been left untouched.

5. (a) What is the lowest/highest July mean temperature in the region?

(b) What is the lowest/highest January mean temperature in the region?

(c) What is the least/greatest number of frost-free days in the region?

(d) Approximately one hundred frost-free days are necessary for grain growing, slightly more for most other crops. Approximately what percentage of the region has an adequate growing period?

80 — 100%	20 — 40%
60 — 80%	5 — 20%
40 — 60%	less than 5%

(e) What is the lowest/highest amount of average annual precipitation in the region?

(f) Approximately 500 mm of average annual precipitation is necessary to grow most crops without irrigation. Approximately what percentage of the region has adequate precipitation?

80 — 100%	20 — 40%
60 — 80%	5 — 20%
40 — 60%	less than 5%

(g) At what time of the year does most of the annual precipitation occur?

— spring, summer, fall, or winter;
— evenly throughout the year.

(h) For how many months will the precipitation most likely be snow?

6. Although a region may have a particular climate, many factors may cause wide differences within a region. Which of the following tend to affect climatic conditions within the region?

— nearness to the ocean;
— height above sea level;
— number of daylight hours;
— scarcity of trees to act as windbreaks;
— thunderstorms;
— hailstones;
— fog;
— chinooks.

7. (a) Population density is measured by the number of people per square kilometre. Approximately what percentage of the region would have each of the following population densities?

over 90	6 — 18
45 — 90	2 — 6
18 — 45	under 2

(b) Where do the people live within the region?

— spread evenly throughout;
— north, south, east or west area;
— a few scattered areas.

(c) How many cities of the following sizes are there within the region?

over 500 000;
200 000 to 500 000;
100 000 to 200 000;
50 000 to 100 000.

Exercise B

Now that you are familiar with the physical features of one region and have some idea of where the people live within that region, let us turn to a study of the whole country. Your teacher will provide you with a blank chart and assist you by making available the information gathered by the other five groups. Be sure to make a mental note of features that are similar to or different from other regions — Canada is a country of striking contrasts but there are more regional similarities than you might think.

Exercise C

Canada is a northern country. Large parts of it were discovered and developed in the search for the Northwest Passage. (Have you ever wondered where the names of some of the islands and straits originated?) The major attraction (on land), three hundred years ago, was high quality beaver furs, a product of a cold climate. Today, even in the parts of Canada that are closer to the Equator than to the North Pole, the playing of the Grey Cup Game is the signal for many to 'go down south.' The character and influence of Canada's northern location is a key feature of our country's art and character. But what does 'northern' mean? The following exercises will help you to explore aspects of that question and help you define 'northern.'

1. Draw a line on Map 1 (Canada) marking the northernmost extent of the growth of coniferous forest. Now, draw another line marking the northernmost limit of 100 frost-free days.

2. Draw the 10°C isotherm line on Map 2. Now, shade the area where the population density is more than two persons per square kilometre.

3. Shade Map 3 to represent the areas of Canada that receive fewer than 250 mm of annual precipitation.

4. List the 12 places named on the six climatic graphs and for each, note the approximate number of summer days averaging above 10°C and the number of winter days averaging below 0°C.

5. Considering the data depicted in 1 to 4 above, the information on the chart (Exercise B) and your own knowledge of Canada, complete this exercise by drawing on Map 4 a line that separates 'northern' from 'southern' Canada. Be prepared to defend your decision.

Exercise D

The physical setting influences the people and their lifestyles. This exercise aims to get you thinking about how landscape, soils, natural vegetation and climatic features of a region can affect the Canadians who live there. (Your teacher will assign you to a group. Please do not expect total agreement on every issue. If your group cannot agree after fully debating an issue, present both or several positions).

For each item arrange the six regions of Canada in a particular sequence:

1. The difficulty in building 100 kilometres of road east-west within the region.

2. The difficulty in building the Trans Canada Highway across the entire region.

3. The degree to which the soils *and* landforms combine to allow for the most widespread agriculture.

4. The extent to which the natural vegetation has been altered by its Canadian inhabitants.

5. The annual home heating costs (assume a fixed cost for 'power'.)

6. The time spent shovelling snow.

7. Summer home air conditioning costs (assume a fixed cost for 'power'.)
8. Where you would like to spend the winter.
9. Where you would like to spend the summer.
10. Where you would most like to live all the year round.
11. The ease of access to large urban areas (over 50 000.)
12. The ease of access to wilderness areas.

Exercise E

Living within a region tends to affect people's attitudes and outlooks. The items below aim to help you explore the possible effects of this country's diverse regional environment on Canadians.

1. Write an account of how you feel typical junior high school students and their families could spend their leisure time in each region. (Look at both summer and winter and consider such activities as skiing, swimming, hunting, camping, fishing, sight-seeing, hiking, outdoors sports and recreation, indoor sports and recreation.)

2. Why do you think Canada's population is distributed the way it is?

3. In some parts of Canada the Federal Government uses tax dollars to subsidize freight rates and passenger fares. In recent years some government agencies have been changed to a 'user-pay' concept. This means that the users' rates or fares must be high enough to pay for the full cost of providing the service. Would Canadians from each of the regions prefer 'user-pay' or 'subsidies' for the following?

   — passenger ocean ferry services within Canada;
   — prairie grain transportation;
   — mail services throughout Canada;
   — airport construction and maintenance;
   — ice-breaking services.

3 THE WESTERN CORDILLERA

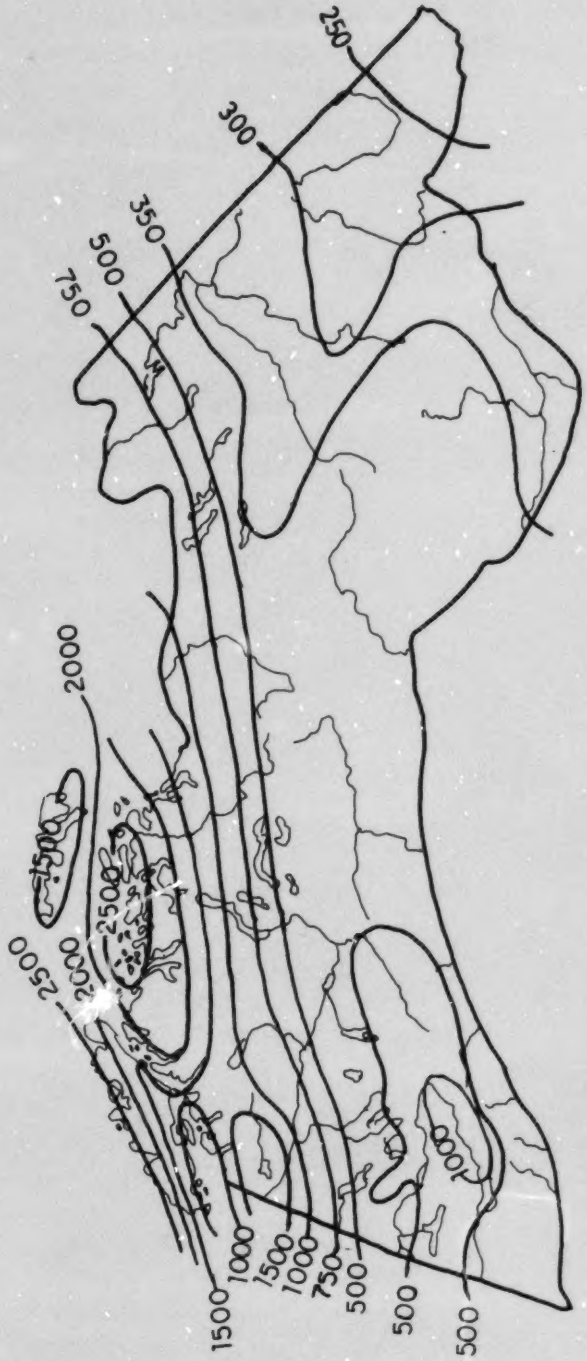
The Western Cordillera presents a wide variety of scenery in a complex jumble of ranges and ridges, plateaus and canyons. The western, interior and eastern mountain systems form a great mountain barrier, 800 kilometres wide, which extends from the 49th parallel to the Alaskan boundary — these latter limits are political, not based on physical geography. The summit of Mount Logan, at 5 950 metres, is the highest point in Canada. While the long valleys, fjord coast, mountain peaks and waterfalls all provide an environment that is a vacationer's paradise, it is, at the same time, a developer's nightmare. For a distance of 700 kilometres, the Coast Mountains remain unbreached by road or rail links. Furthermore, rock slides are not uncommon and substantial slides and rockfalls regularly block the railways and highways.

Climate in the Cordillera is strongly influenced by local conditions. Differences in latitude, distance from the sea, and the constant interaction between air masses from the sea and the continent, all combine to create environments varying from rain forest to hot desert to tundra. The southern coastal area is the only part of Canada that enjoys average winter temperatures above freezing. The coast is very wet. Away from the coast, temperature conditions rapidly become more extreme, and precipitation declines sharply. Winter temperatures can be very low, while in the southern interior valleys, summer temperatures can be very high. Throughout the whole region, mountainous terrain causes extreme variations in local climate. Residents of the Vancouver area, for example, can often sail or ski within 15 kilometres of each other on the same winter day.

The climate of the Cordillera affects the vegetation enormously. The coastal areas are famous for its forests. The interior vegetation ranges from stands of Ponderosa pine amid rough grasses to a true desert of sagebrush, cacti and scrub. To the north and higher up the slopes, mixed conifers and rich grasses abound.

THE WESTERN CORDILLERA

AVERAGE ANNUAL PRECIPITATION IN MM



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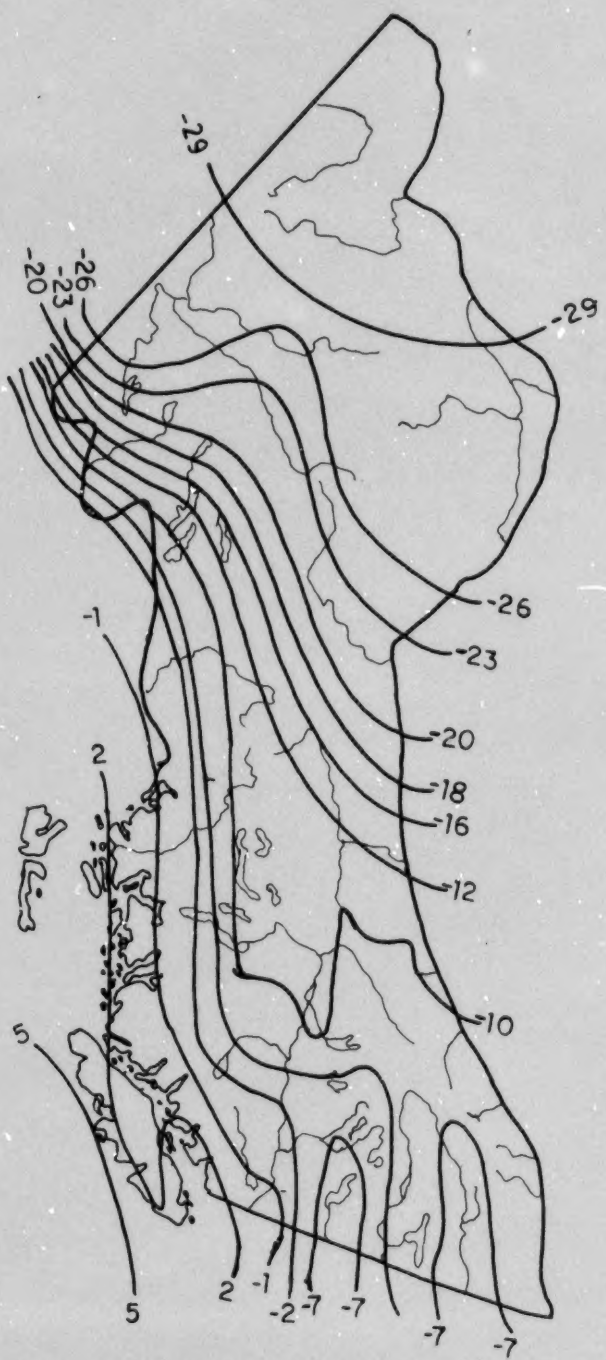
THE WESTERN CORDILLERA

AVERAGE JANUARY TEMPERATURES IN °C



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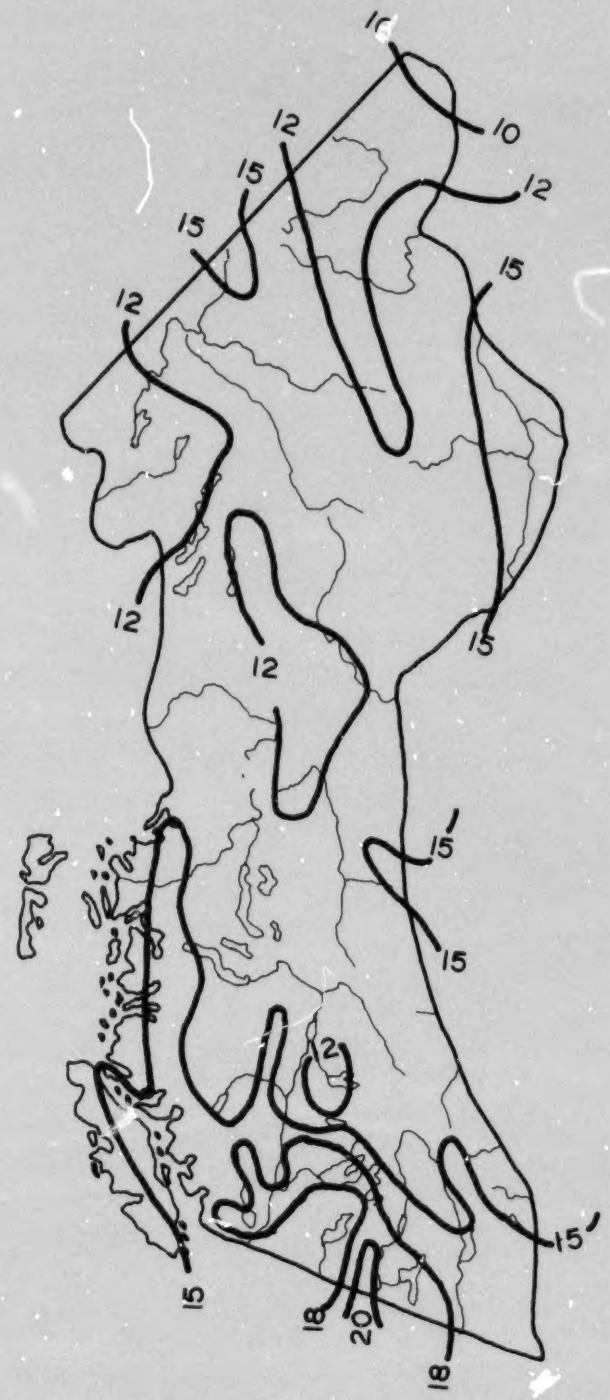
THE WESTERN CORDILLERA

AVERAGE JULY TEMPERATURES IN °C



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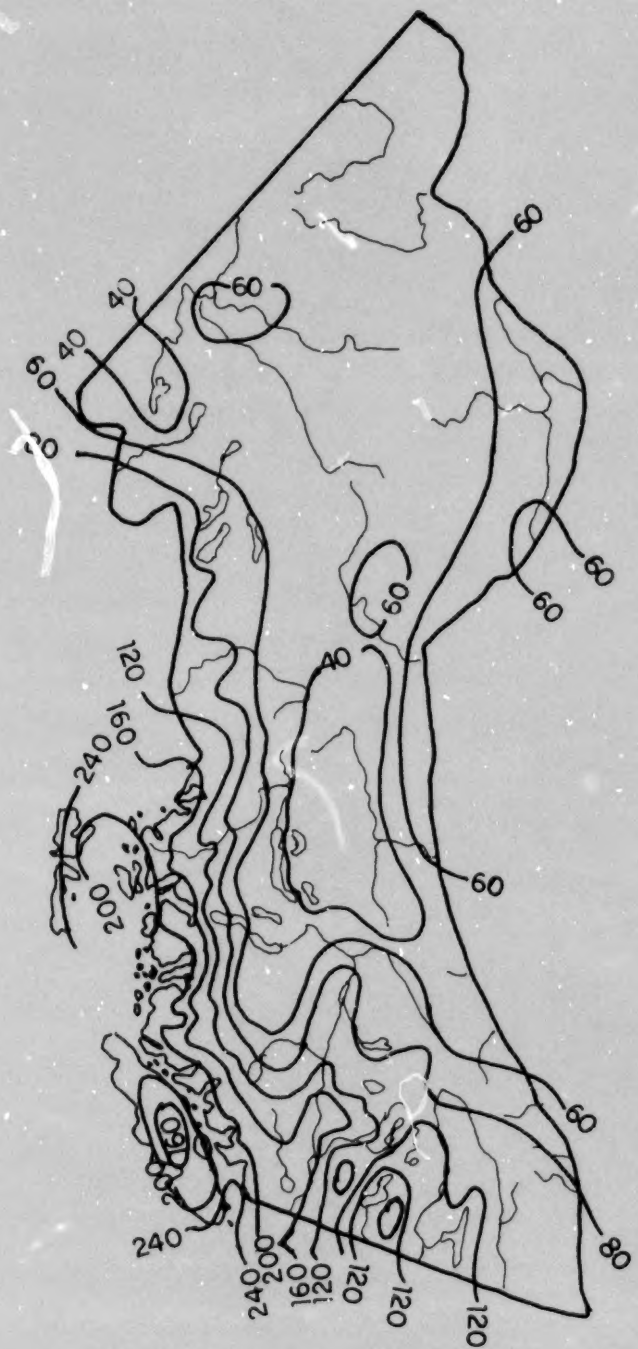
THE WESTERN CORDILLERA

FROST-FREE DAYS



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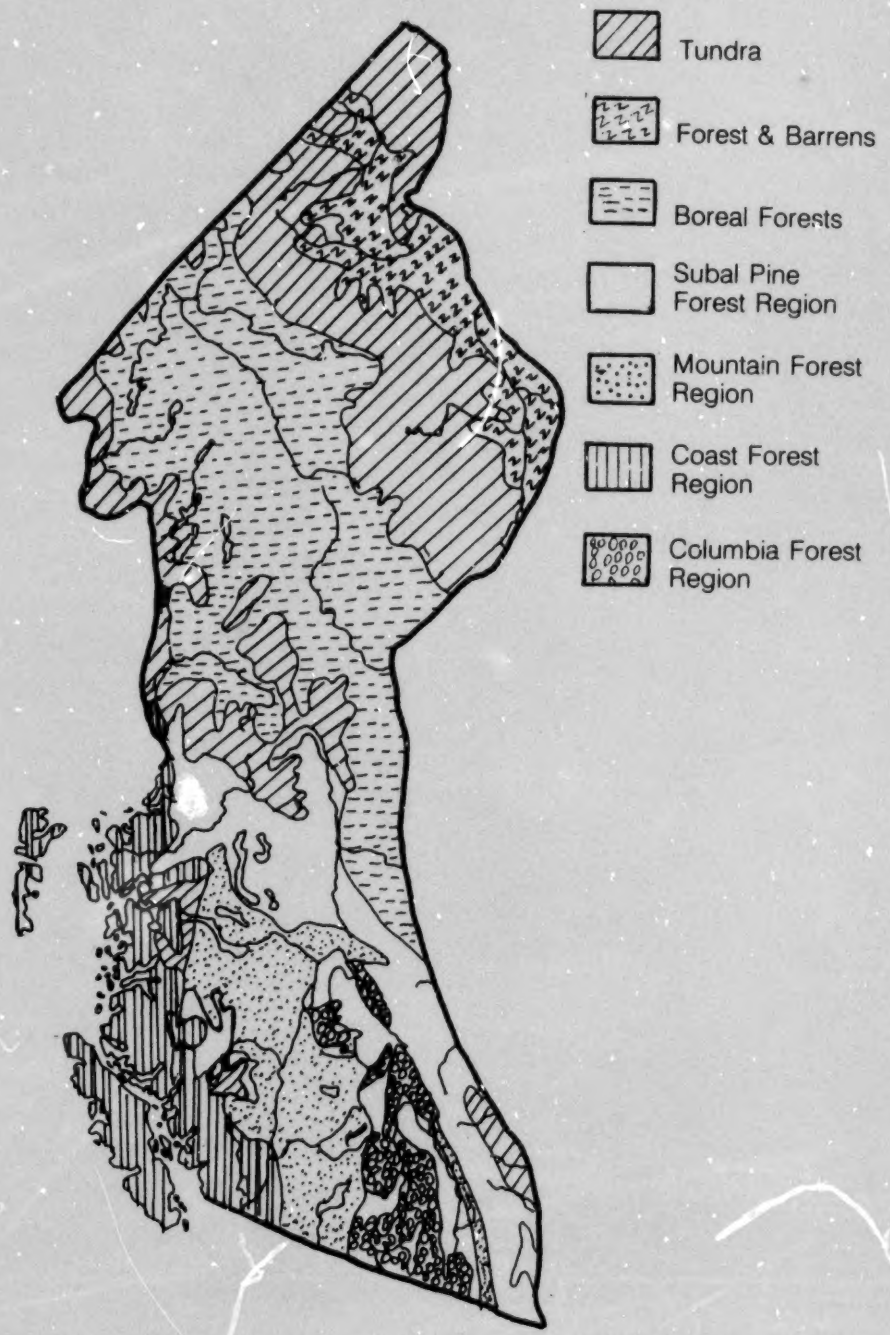
THE WESTERN CORDILLERA

NATURAL VEGETATION



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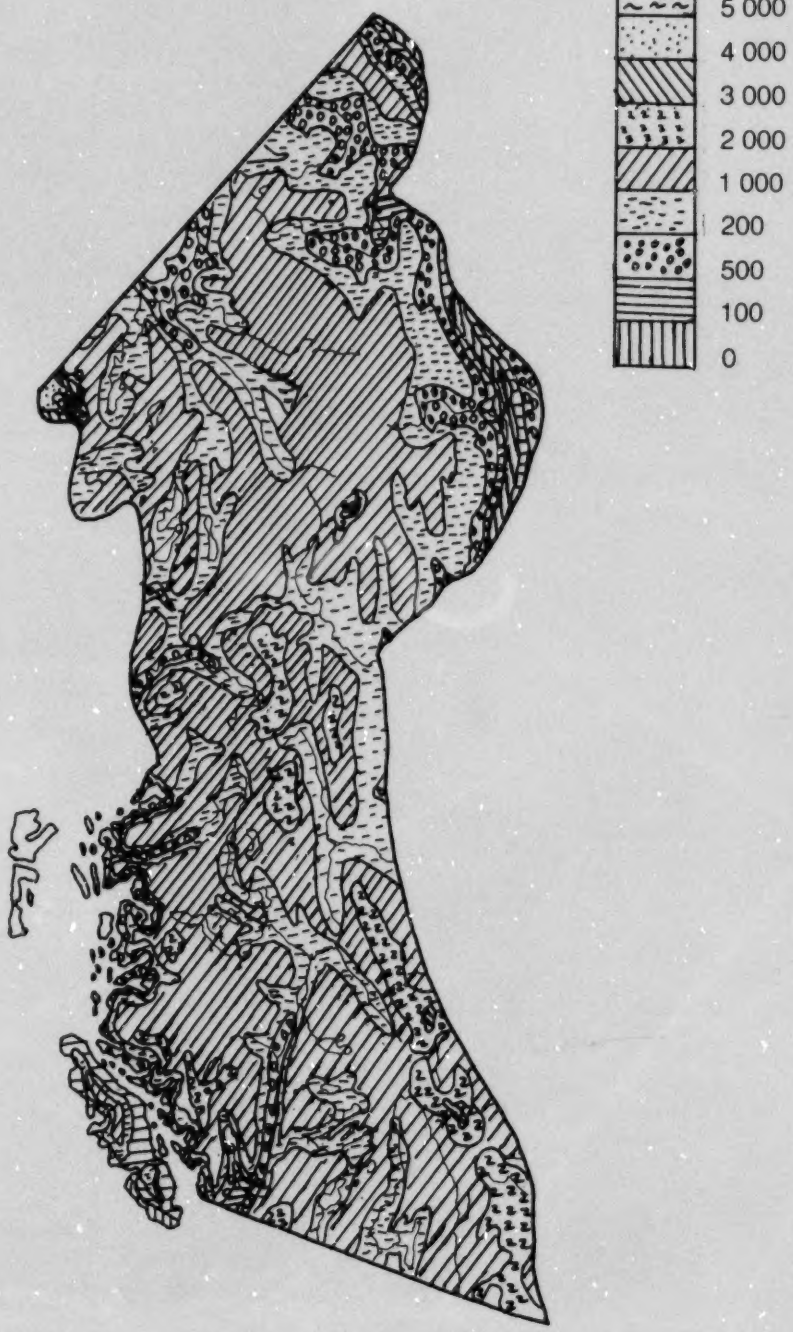
THE WESTERN CORDILLERA

PHYSICAL (RELIEF)



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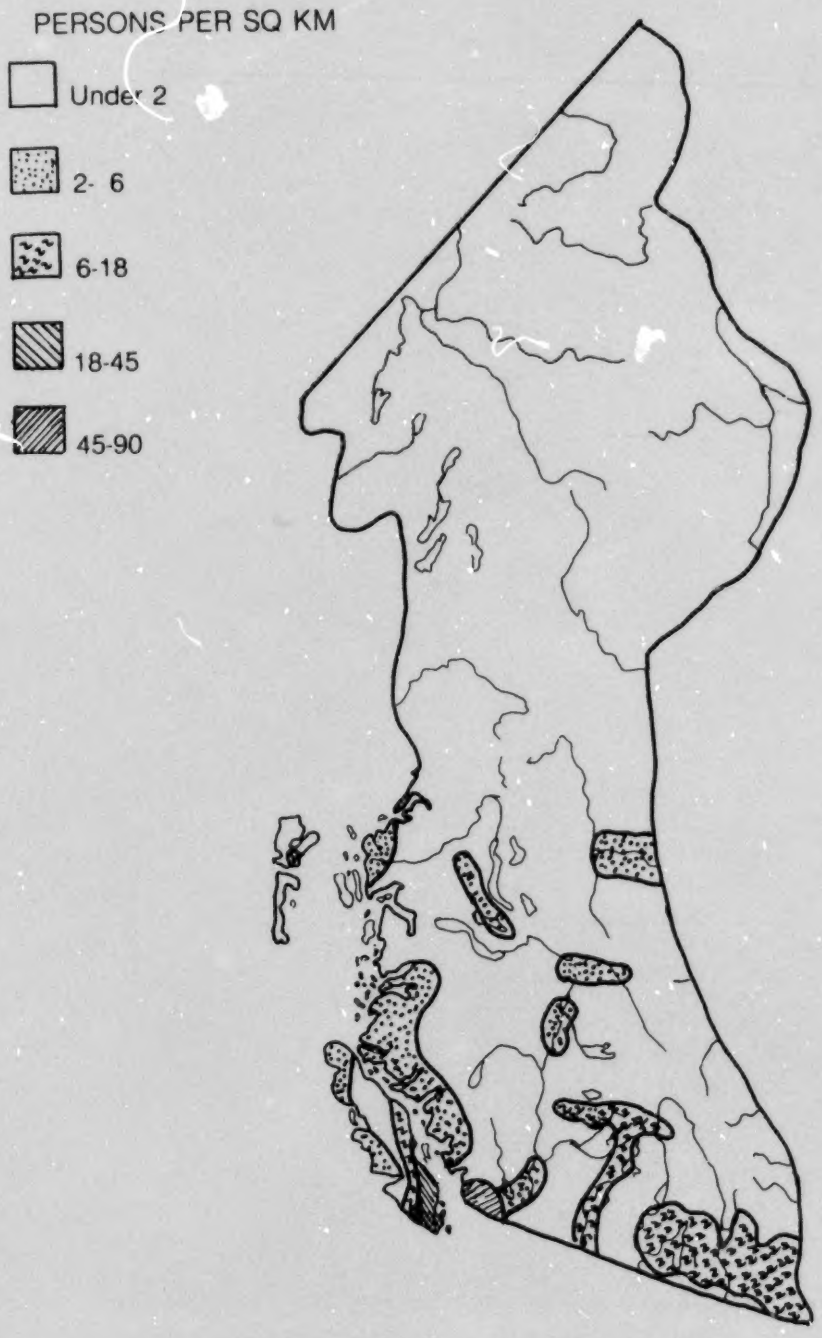
THE WESTERN CORDILLERA

POPULATION CENTRES (URBAN)

Scale 1 mm = 5.25 km.

THE WESTERN CORDILLERA

POPULATION DISTRIBUTION



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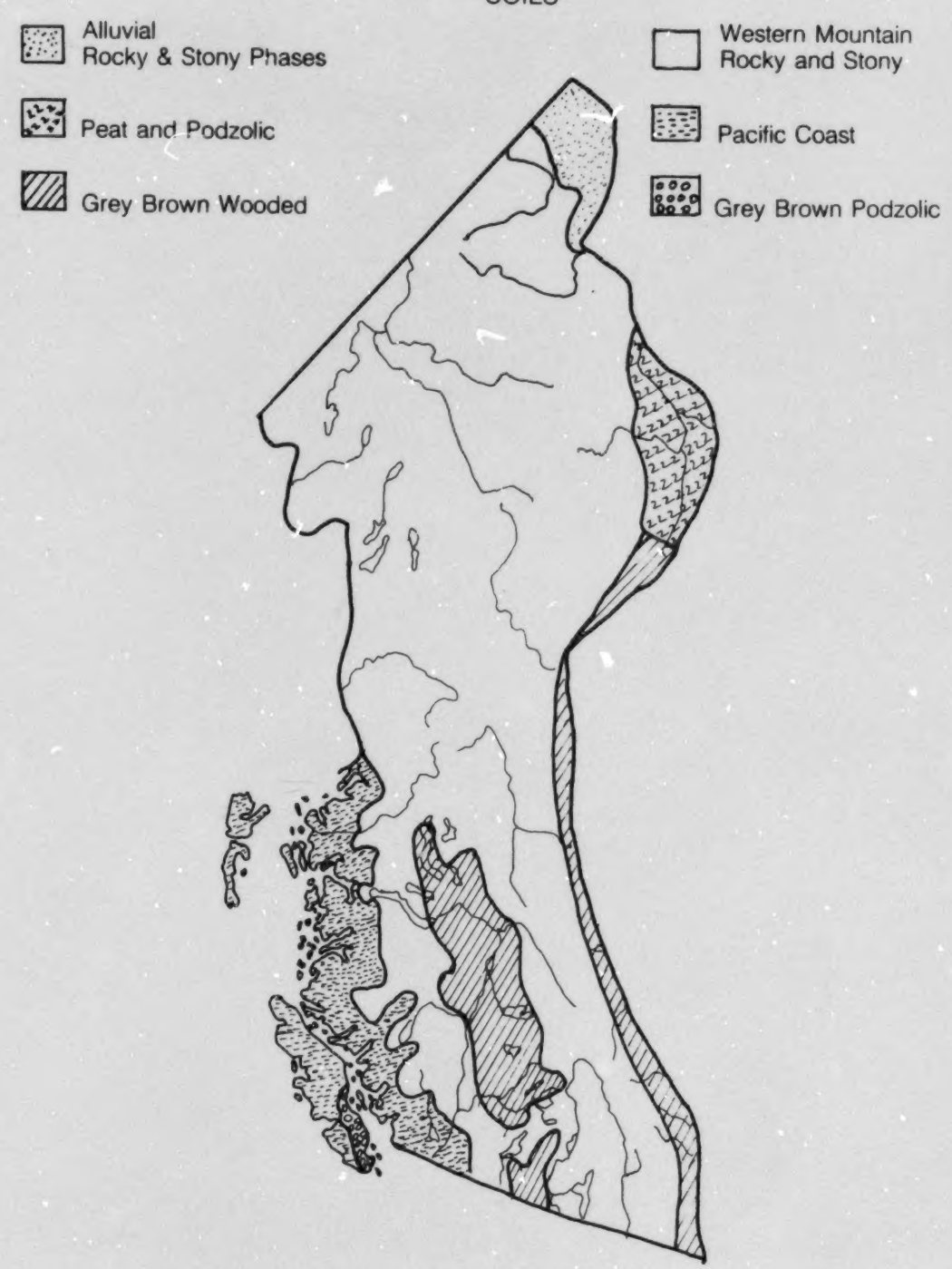
THE WESTERN CORDILLERA



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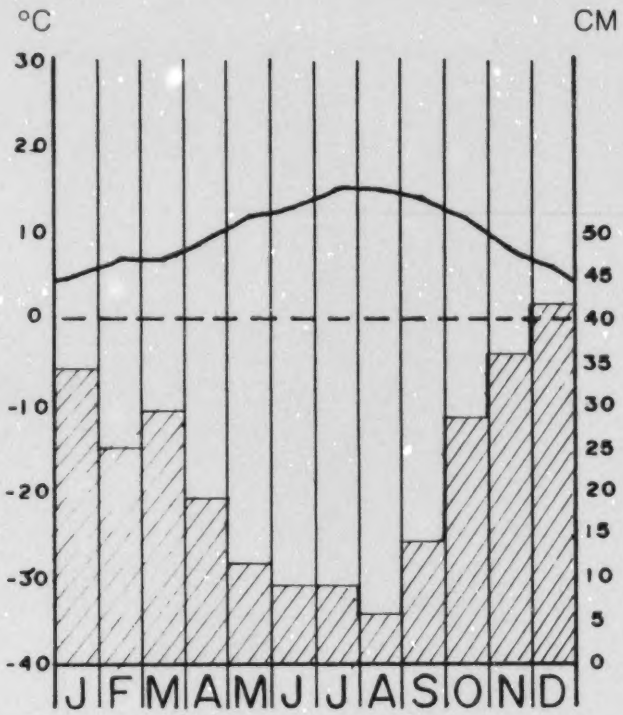
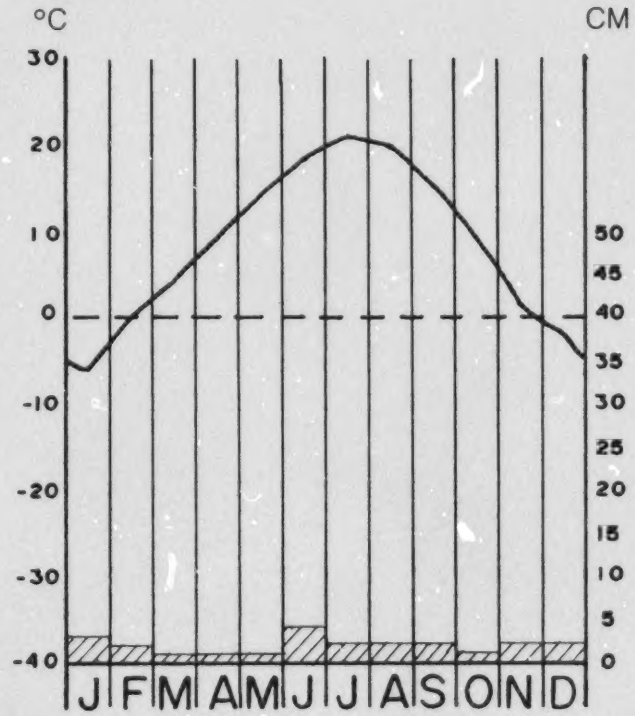


CLAYOQUOT

BAR — PRECIPITATION
LINE — TEMPERATURE



KAMLOOPS

4 THE INTERIOR PLAINS

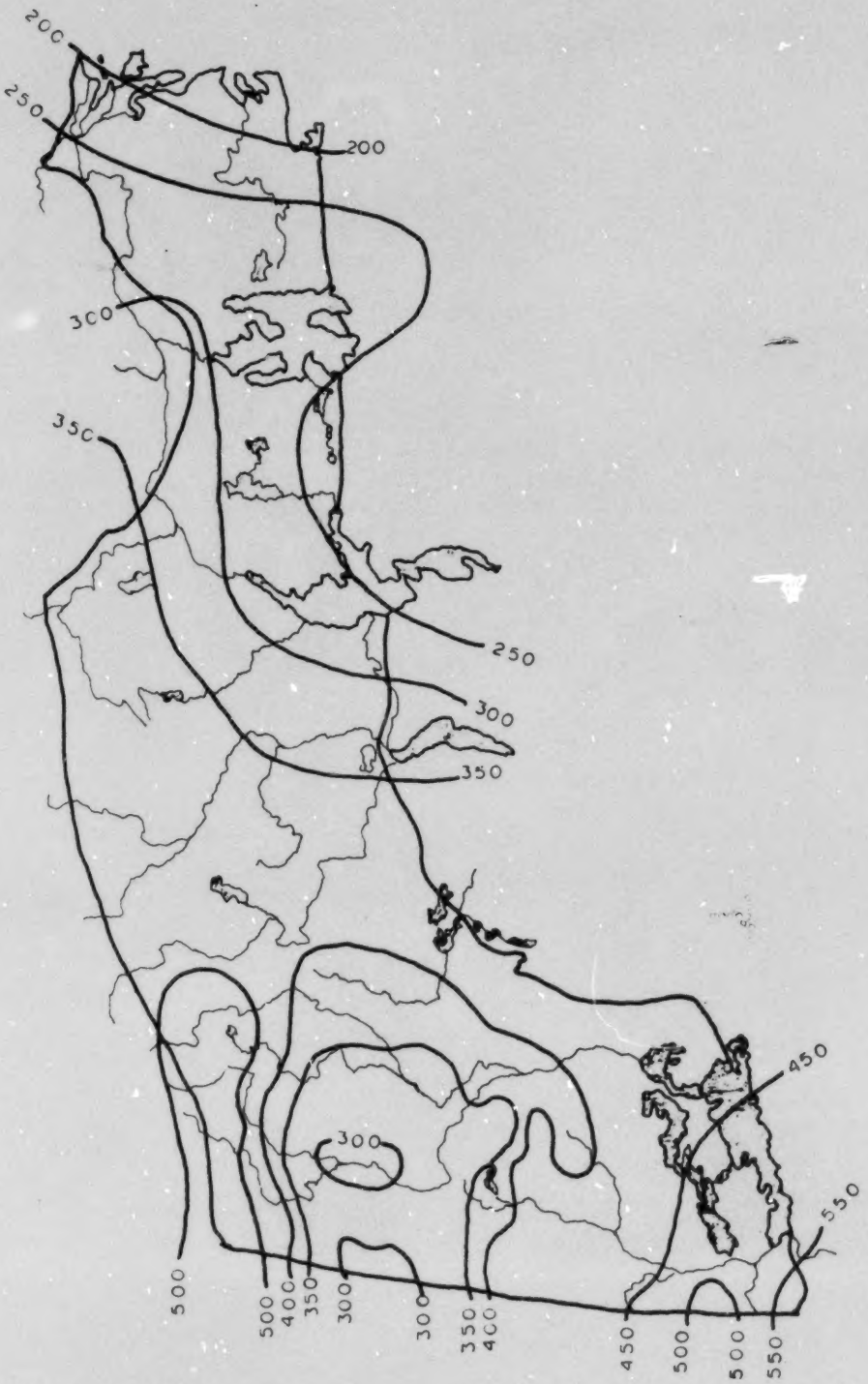
The Interior Plains region of Canada is the northern part of a physical region that extends far southward into the United States. (The 49th parallel is only an artificial line based more on politics than geography.) The region's main feature is wide open space. While large areas are very flat, there are hills, escarpments and river valleys. Another important feature of the Interior Plains is the river systems, consisting of a few major rivers and tributary streams. Only in Manitoba and in the Northwest Territories are there any large natural lakes. Over the rest of the region, well-drained soil and low precipitation keep lakes small and scattered. The Interior Plains can strike one as an 'ocean' of land!

It is a harsh environment. Winters are long and cold with winds sweeping across the open, often treeless plains. Close to the western mountains, winter temperatures are lowered by the Chinook, a local wind which is warmed by pressure as it descends the slopes. (Thus Calgary, although 133 kilometres further north and nearly 800 metres higher above sea level than Winnipeg, has an average January temperature of 10°C higher.) In summer, the interior areas, far from the influences of the sea, heat up intensely. The region has the most sunshine of any in Canada, and under clear skies, heat radiates freely.

The Interior Plains is a rather dry environment. Precipitation is generally low throughout. Most falls in the summer months when high temperatures and dry winds reduce its effectiveness. Yet, rapidly melting snow in spring can create shortlived but raging torrents. Thunderstorms are frequent in summer, averaging 20 days a year for most of the Prairies area, and give rise to torrential rain and hail. Hailstones are usually about a centimetre in diameter, but can be as large as baseballs, and coverings of a foot deep have often been reported. Hail can cause almost total crop failure for the farmer.

THE INTERIOR PLAINS

AVERAGE ANNUAL PRECIPITATION IN MM



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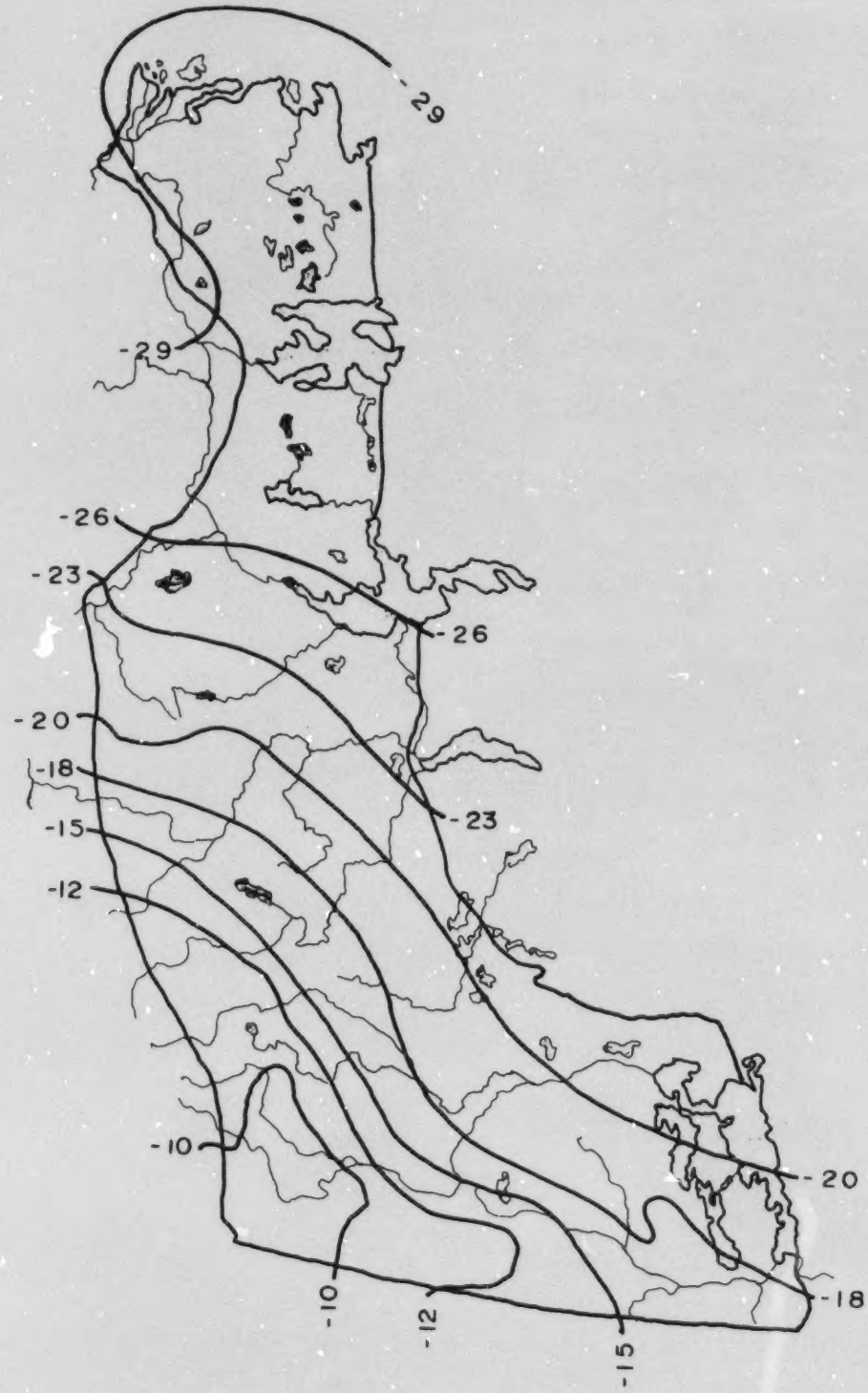
THE INTERIOR PLAINS

AVERAGE JANUARY TEMPERATURES IN °C



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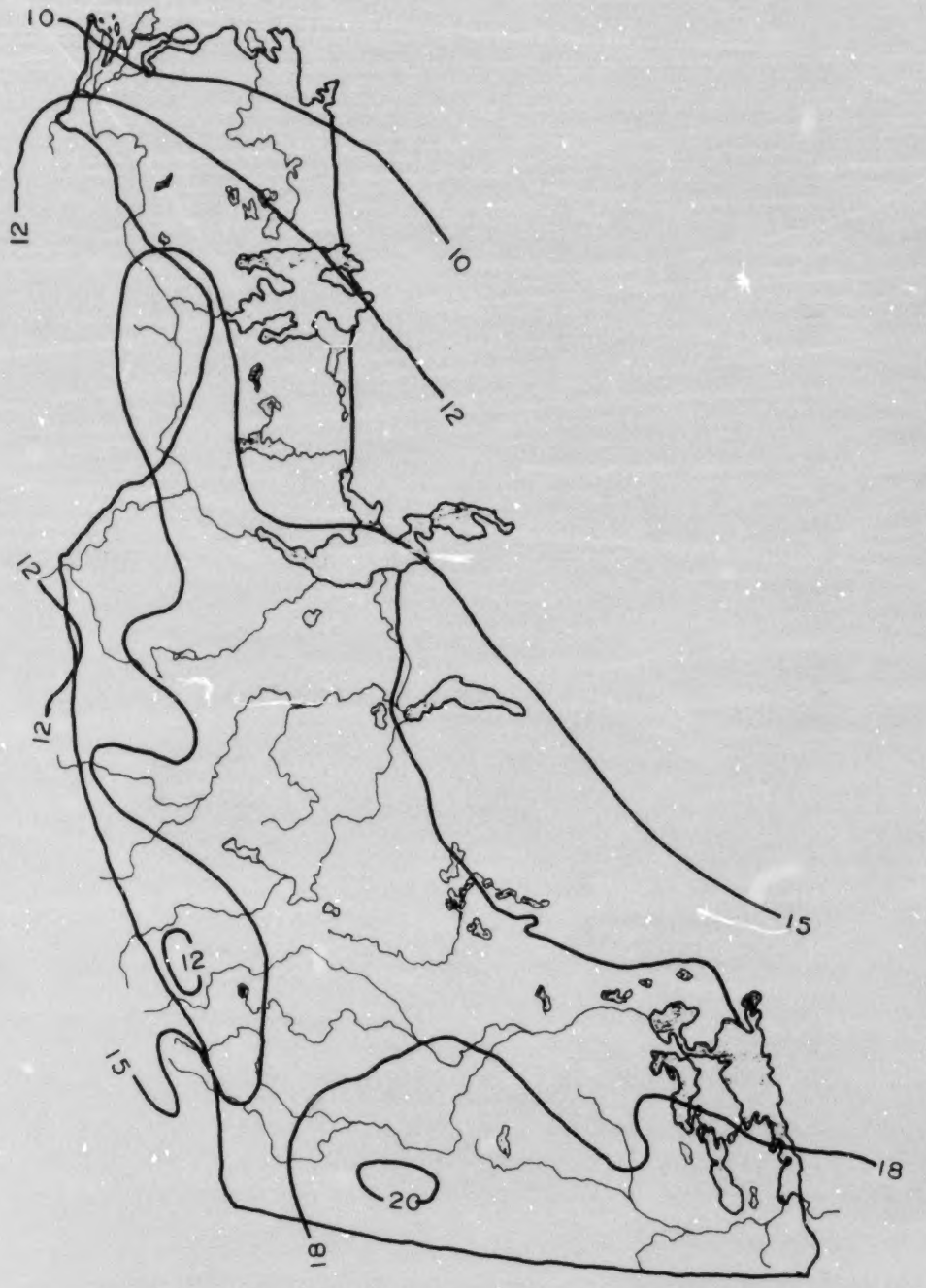
THE INTERIOR PLAINS

AVERAGE JULY TEMPERATURES IN °C



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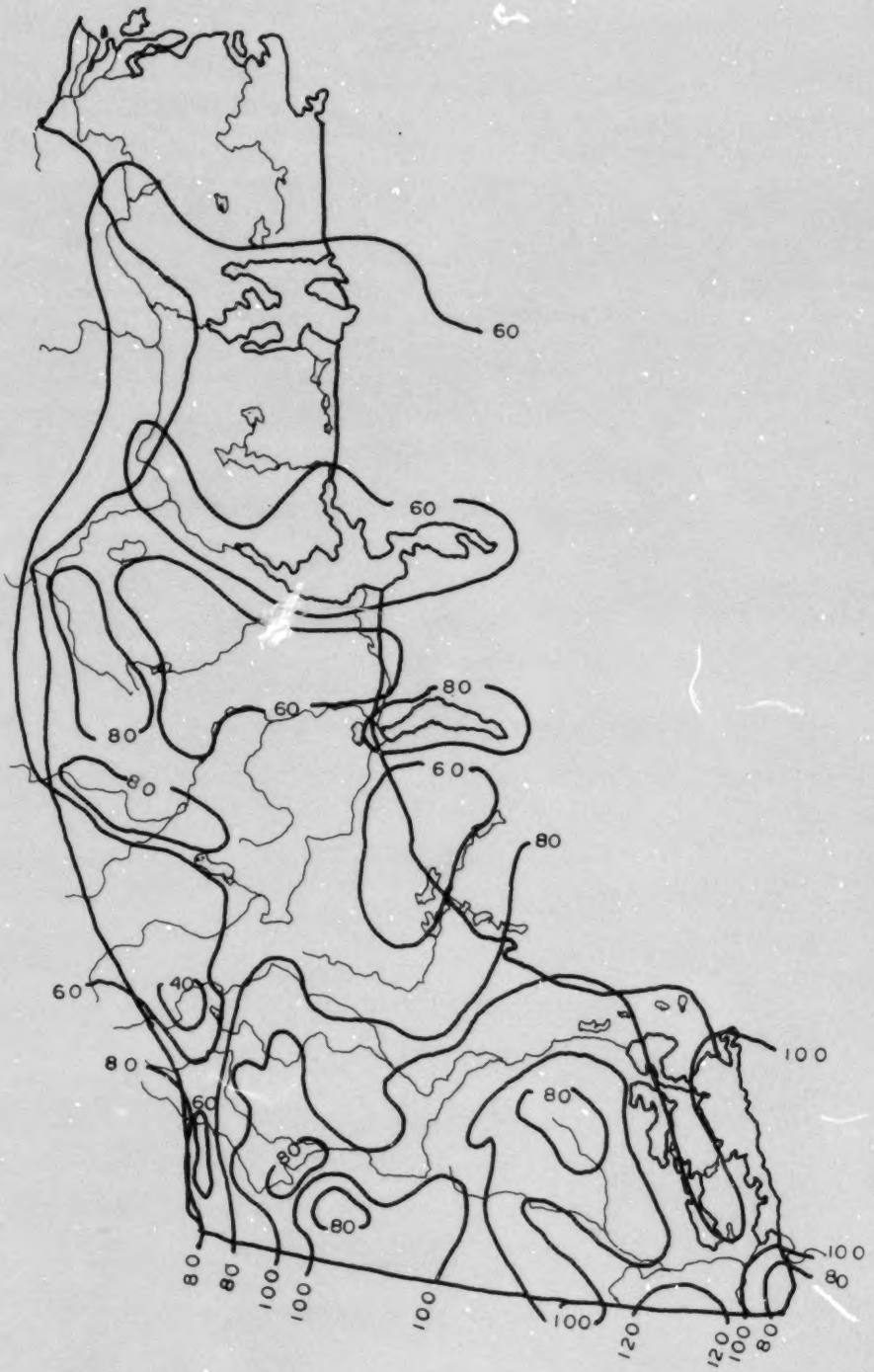
THE INTERIOR PLAINS

FROST-FREE DAYS



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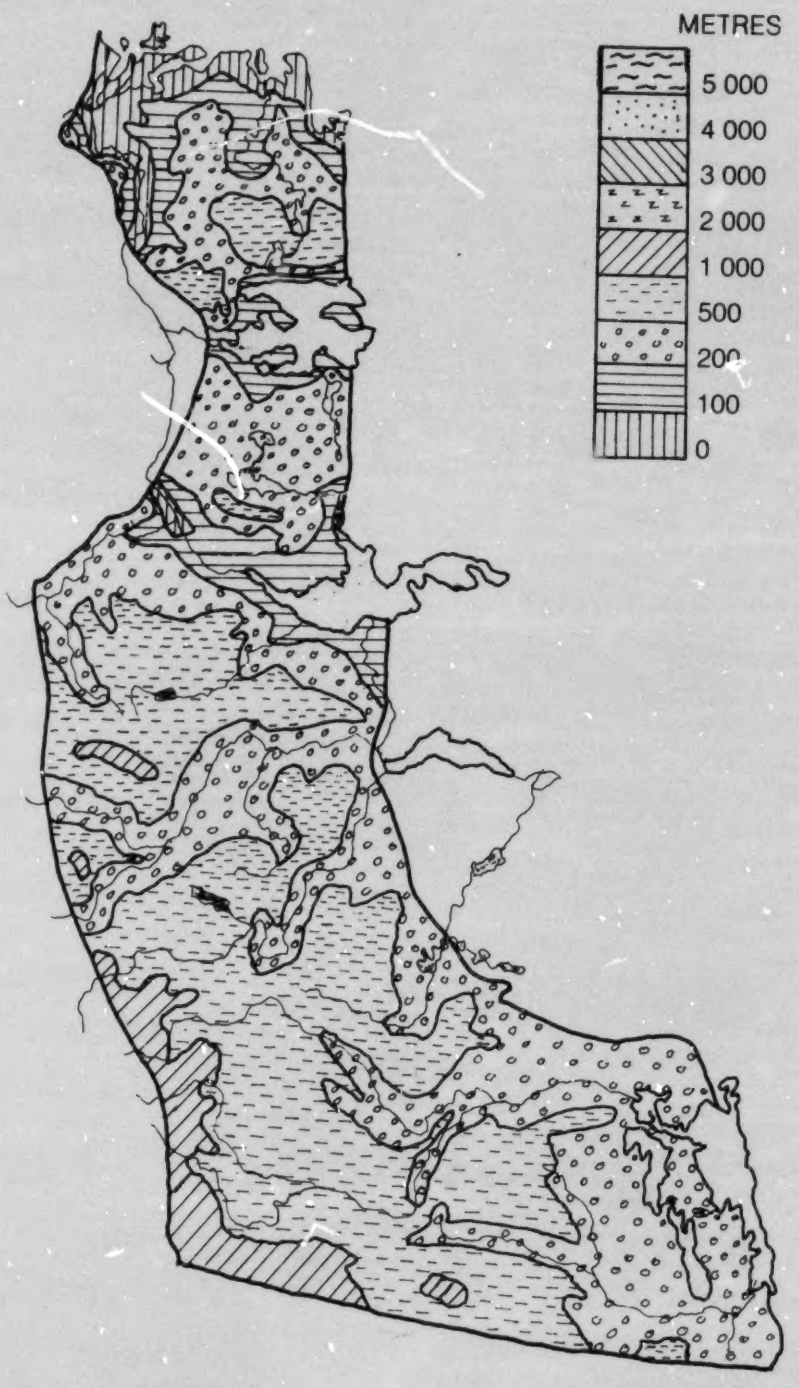
THE INTERIOR PLAINS

NATURAL VEGETATION

Scale 1 mm = 5.25 km

THE INTERIOR PLAINS

PHYSICAL (RELIEF)



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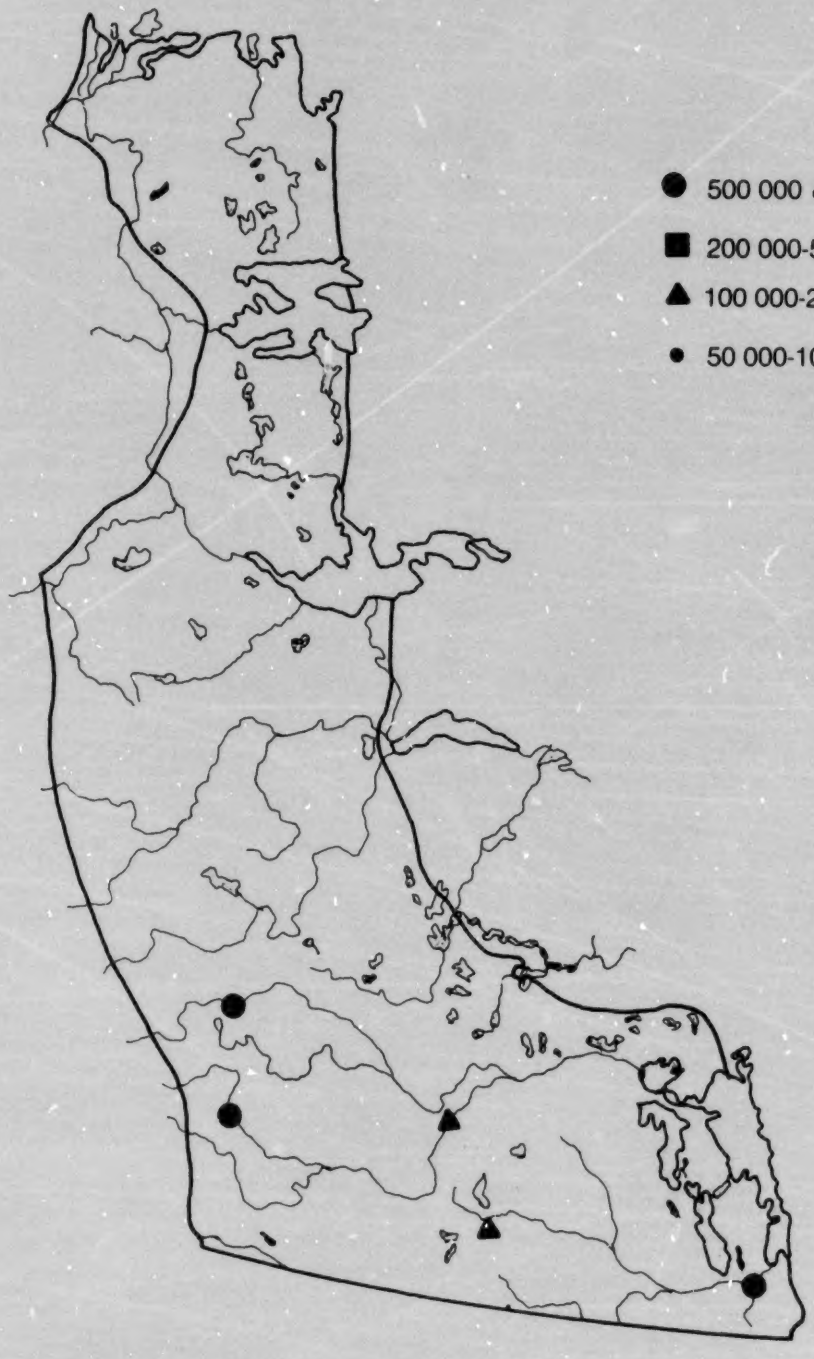
THE INTERIOR PLAINS

POPULATION CENTRES (URBAN)



Scale 1 mm = 5.25 km

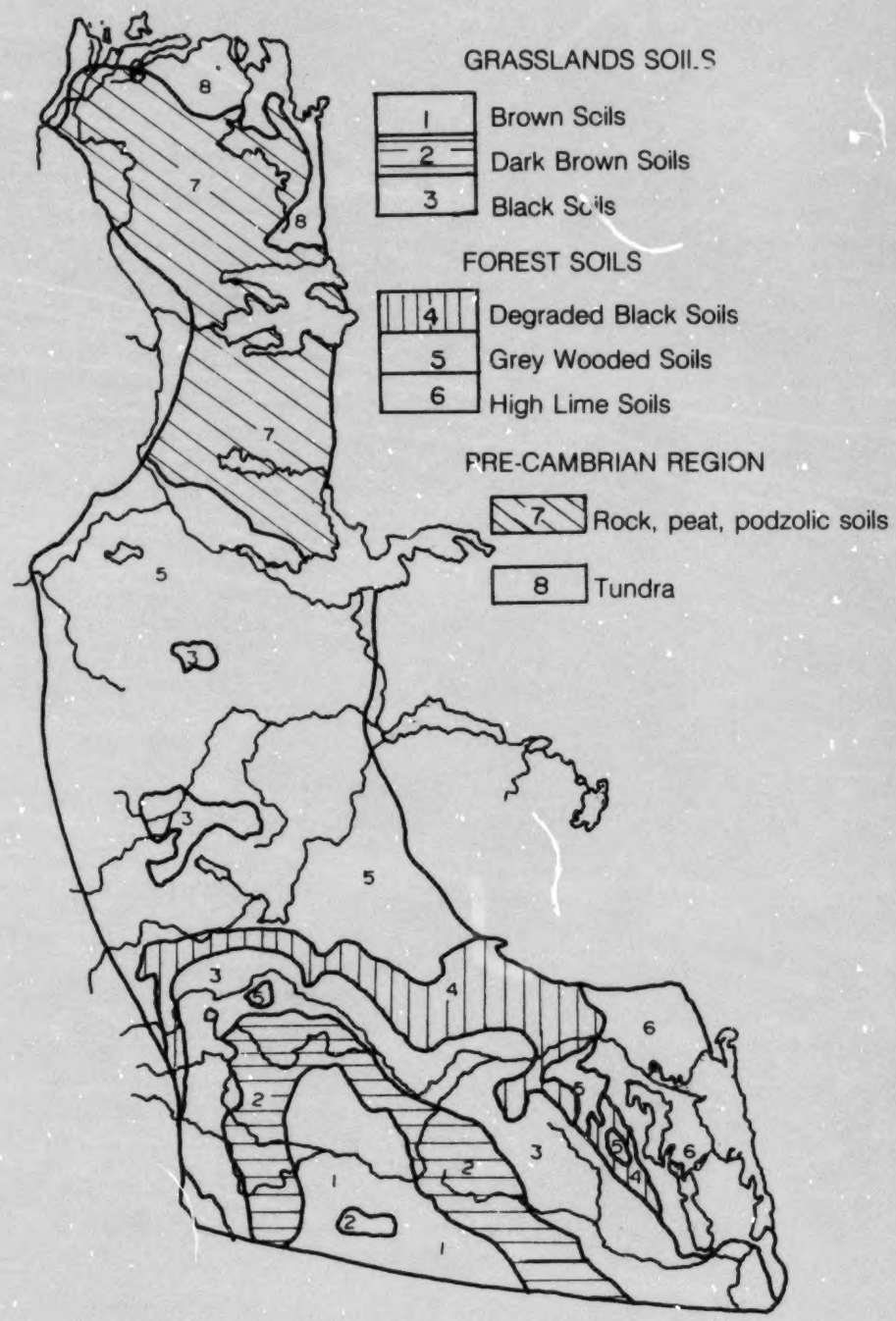
THE INTERIOR PLAINS

POPULATION DISTRIBUTION

Scale 1 mm = 5.25 km

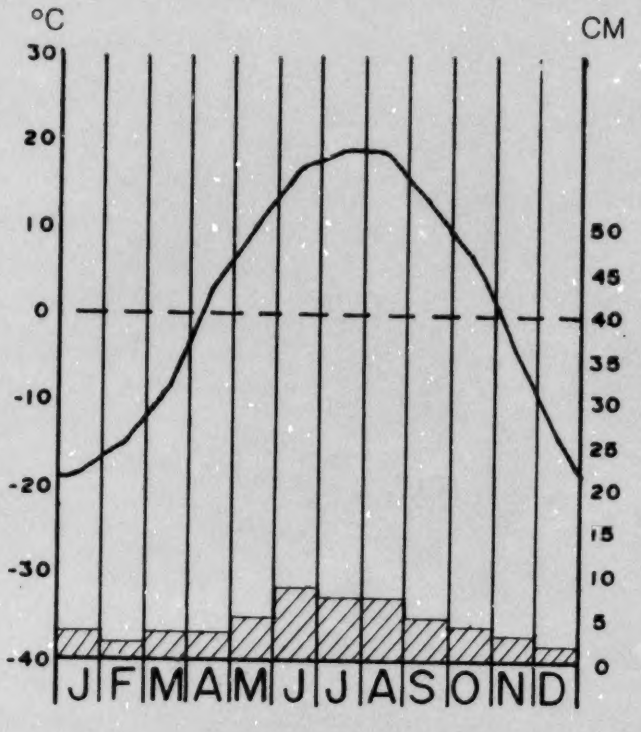
THE INTERIOR PLAINS

SOILS



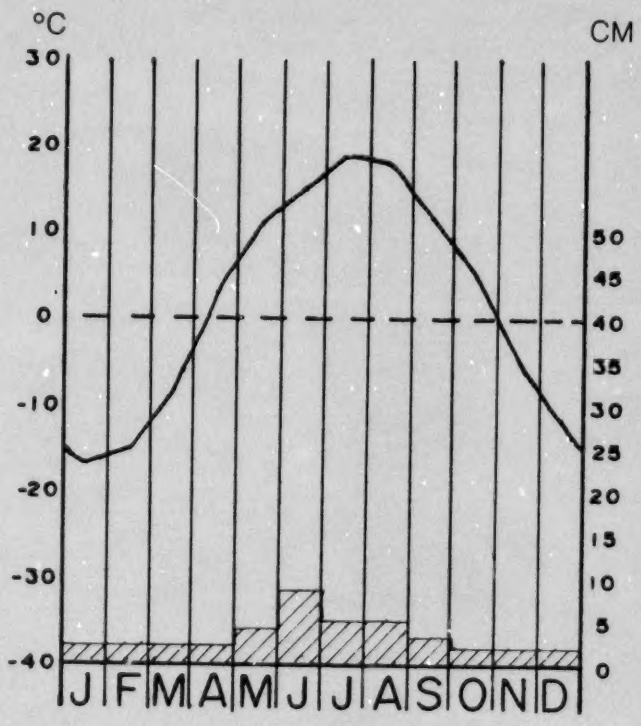
Scale 1 mm = 5.25 km

THE INTERIOR PLAINS



WINNIPEG

BAR — PRECIPITATION
LINE — TEMPERATURE



REGINA

5 THE CANADIAN SHIELD

(including the Hudson Bay Lowland)

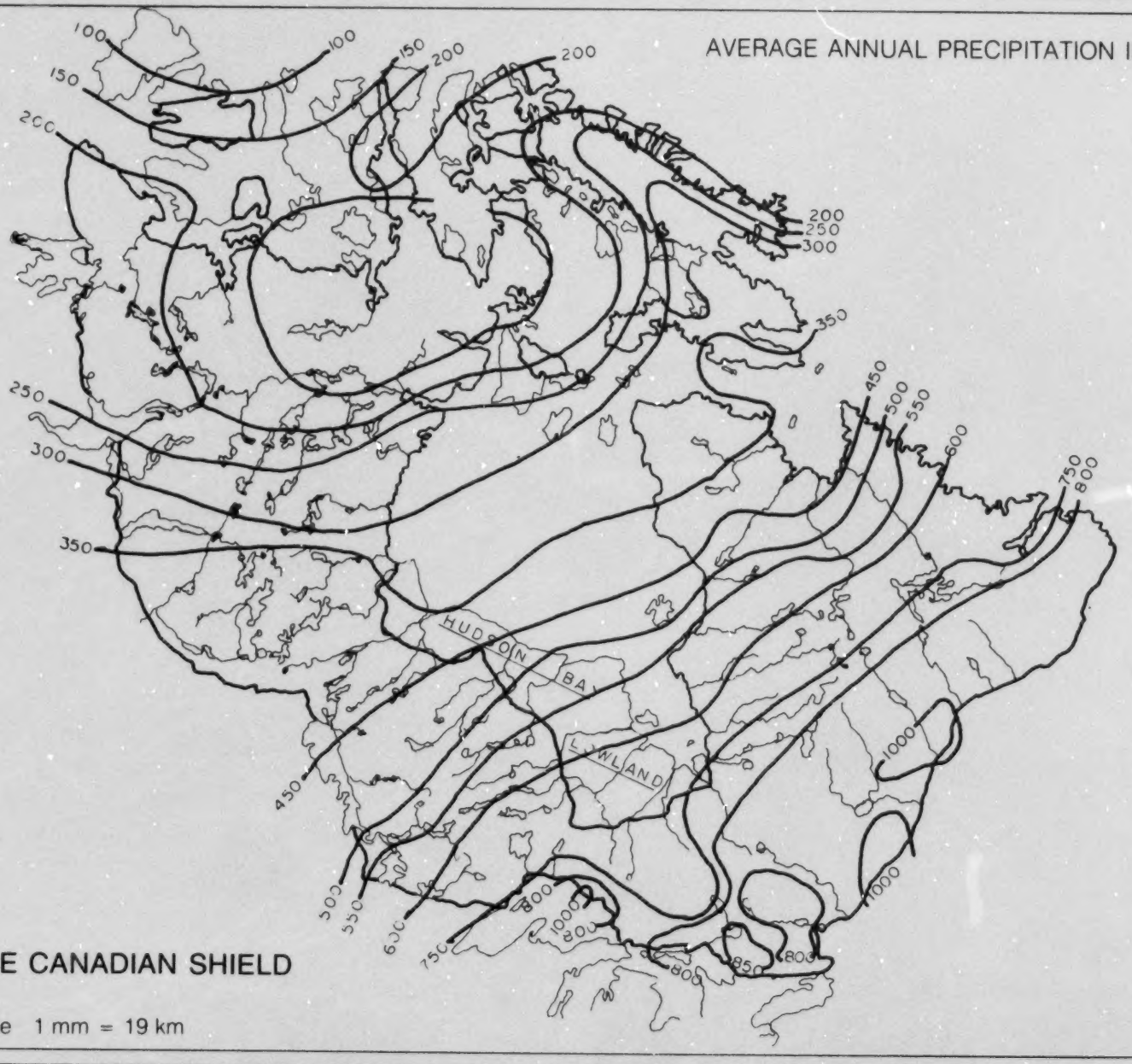
Stretching over nearly 50% of mainland Canada, the Canadian Shield is a vast sweep of rock, lake, muskeg and forest. The shield is the natural home of such national symbols as the maple and the beaver. As well it is the habitat of folk heroes: voyageurs, lumberjacks, and prospectors. The shield provides the setting for much Canadian literature and the art of the Group of Seven. In addition to its great natural wealth, the Canadian Shield serves as a haven for people seeking relaxation. Yet, while this uniquely Canadian environment contributes greatly to Canada's self-image, the region is generally hostile to human activities, mostly unsettled, unproductive and unknown.

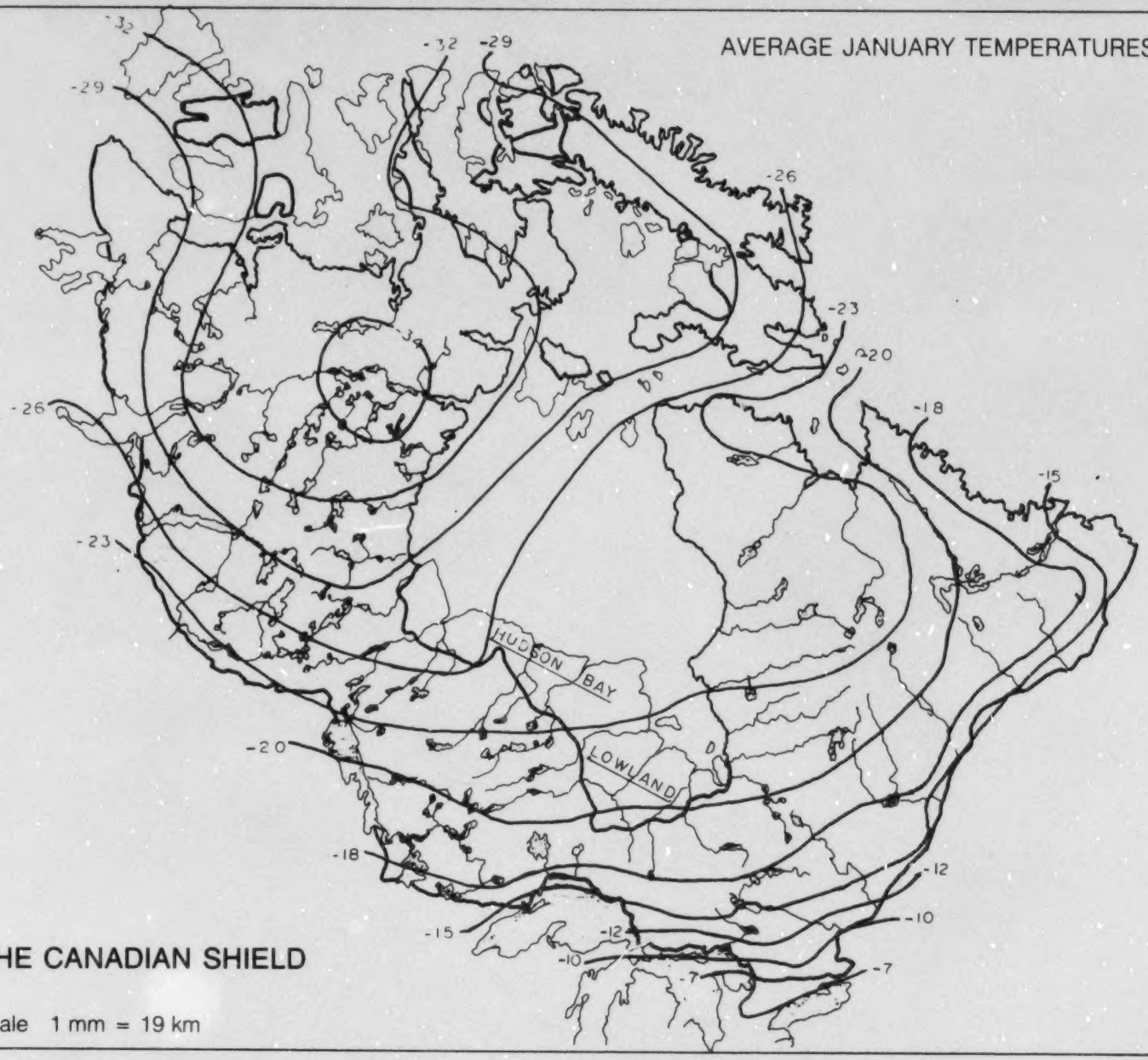
Almost one-third of the surface of the Canadian Shield is covered by water. Twisting streams and rivers abound, with most featuring falls and rapids. Long, narrow lakes are common; so too are bare rocks with waterfilled hollows. The land is rugged but summits seldom exceed 600 metres. Shield scenery can appear monotonous — the very term 'barrens' reflects this fact.

Long, cold winters and short, cool summers are a fact of life facing all ventures in the Canadian Shield. Canada's reputation as a country of two seasons is apt. In the winter months, great masses of cold, dry Arctic air keep temperatures very low. In the summer months, warm Gulf air and long hours of daylight produce very hot weather.

The western inland section of the shield receives only light precipitation, almost half in the form of snow. The eastern section gets about twice as much.

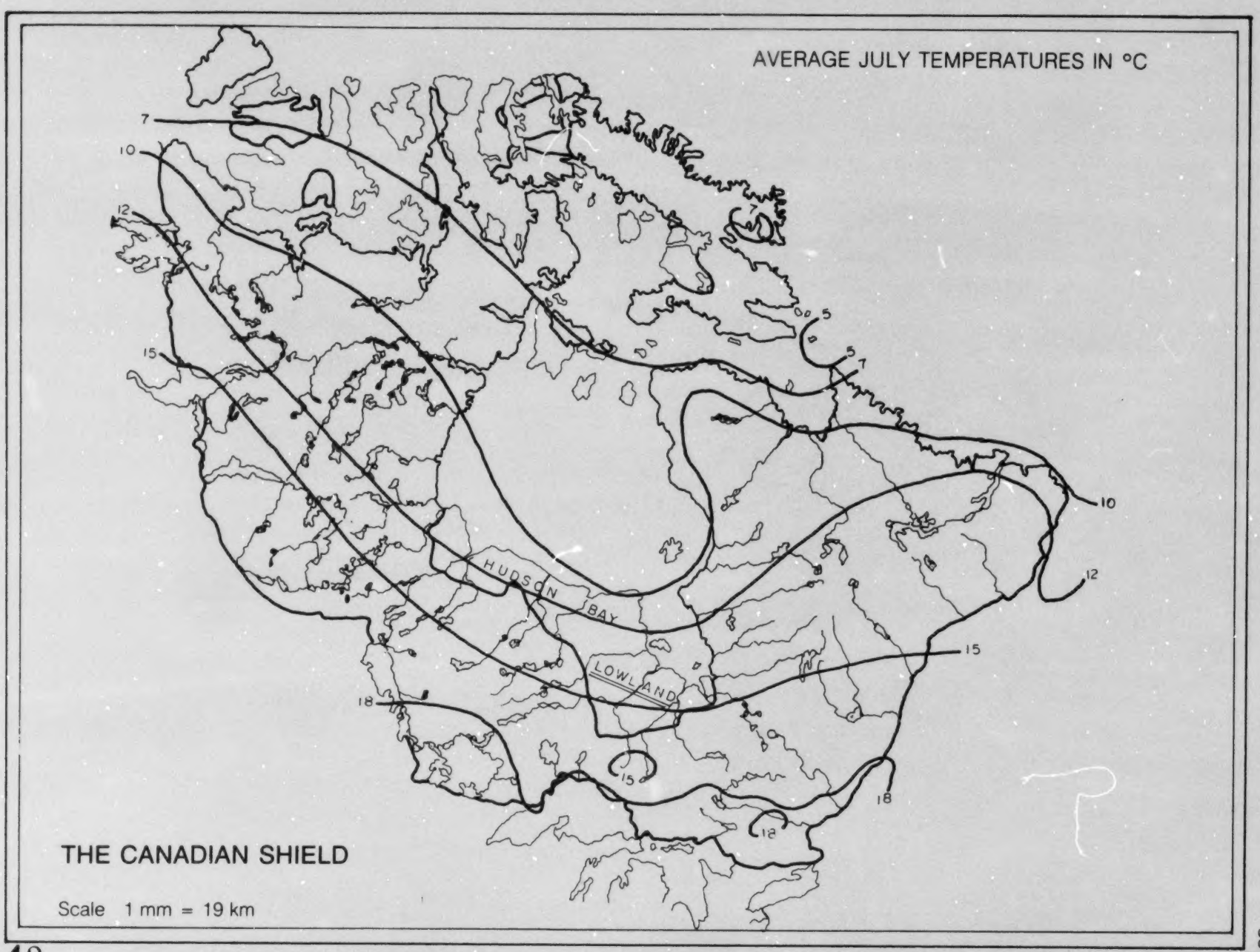
Maple, birch and aspen are common shield trees. Dense forests cover the southern part of the region. As one moves northward, conifers, mostly spruce and balsam, replace the deciduous trees. Beyond 50° North, the forests gradually thin out to become subarctic woodlands and eventually treeless tundra.


AVERAGE ANNUAL PRECIPITATION IN MM
100
150
200
250
300
350
450
500
550
600
750
800
1000
HUDSON BAY
LOWLAND
THE CANADIAN SHIELD
Scale 1 mm = 19 km



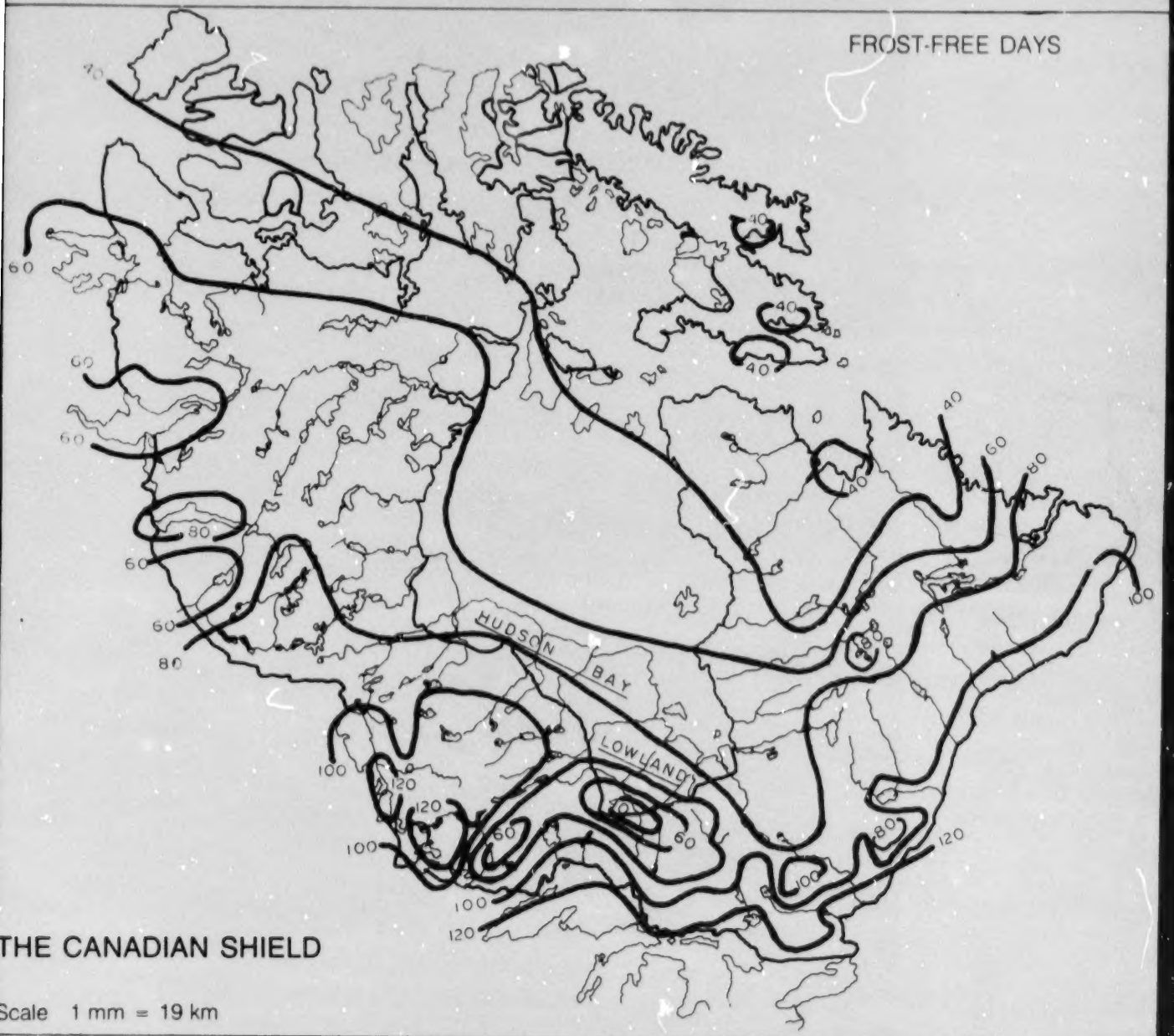
THE CANADIAN SHIELD

Scale 1 mm = 19 km



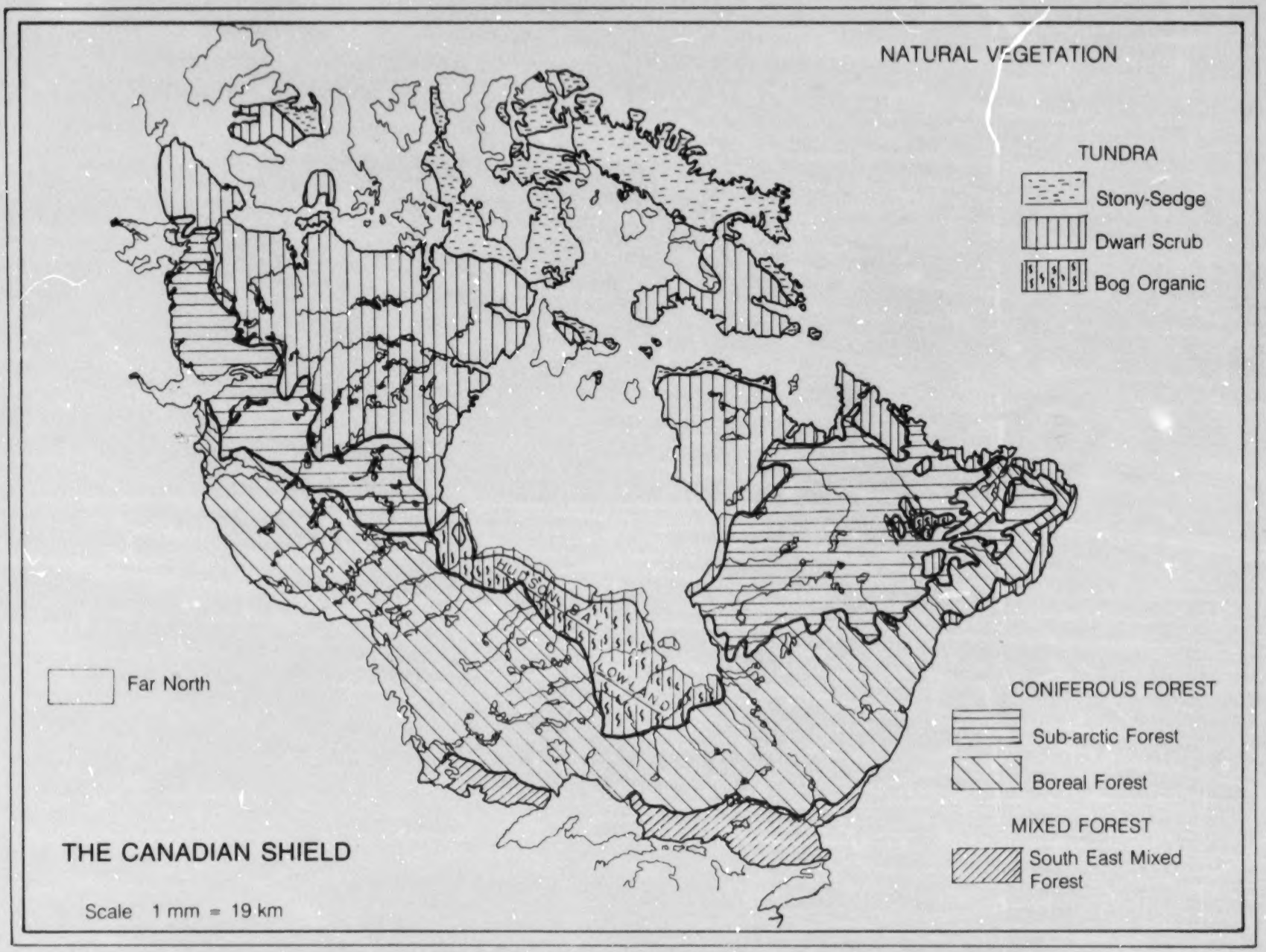
THE CANADIAN SHIELD

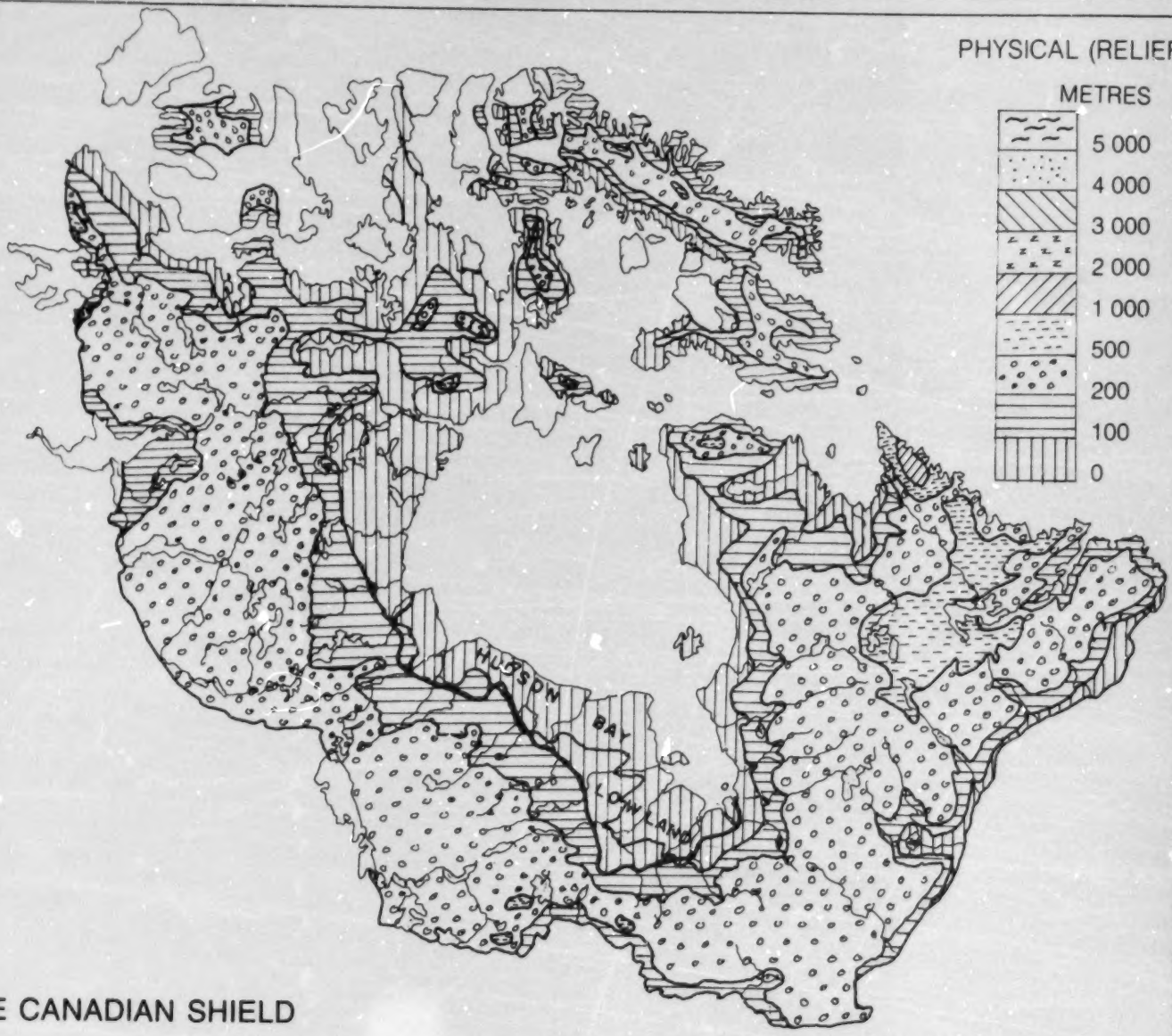
Scale 1 mm = 19 km



THE CANADIAN SHIELD

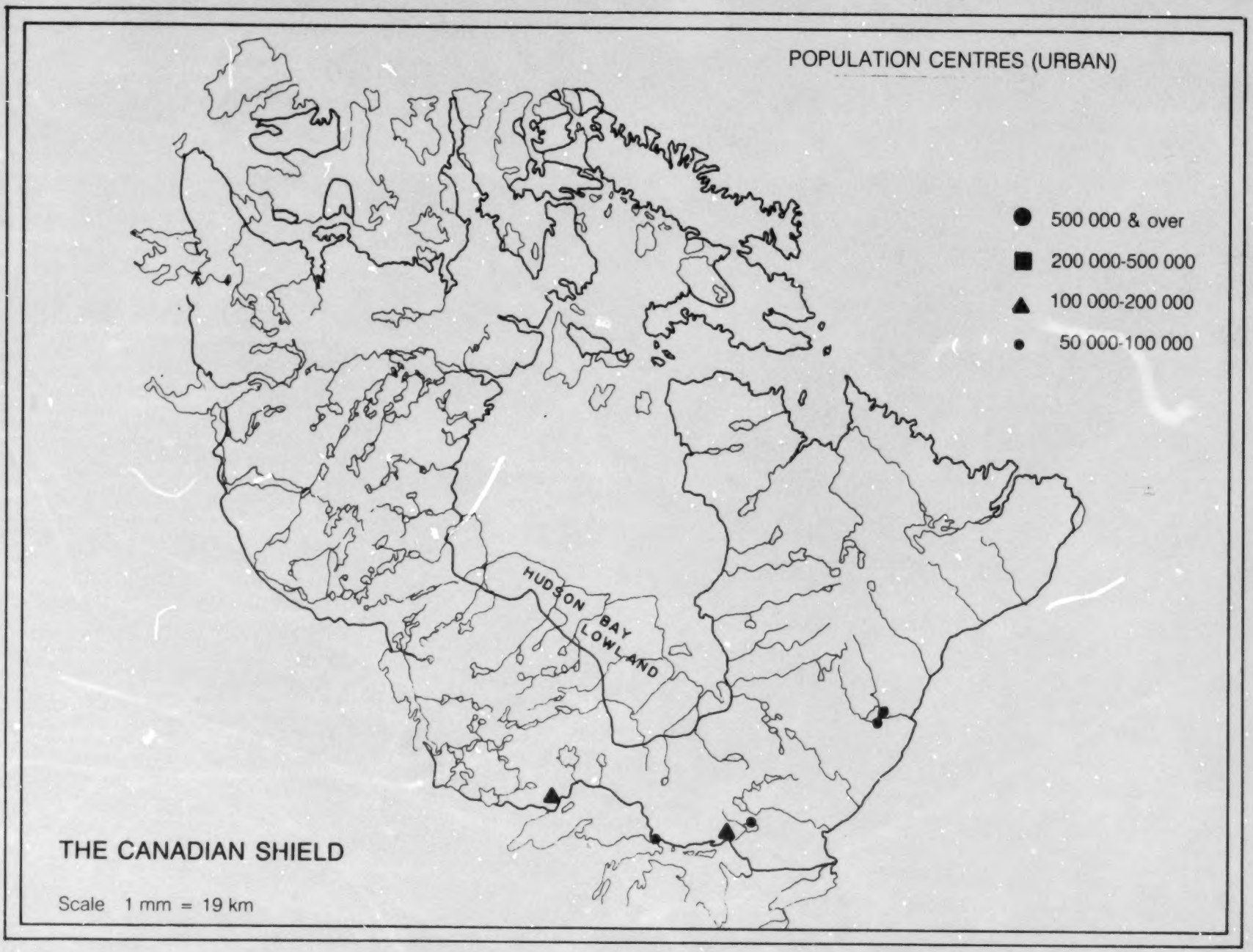
Scale 1 mm = 19 km


NATURAL VEGETATION
TUNDRA
Stony-Sedge
Dwarf Scrub
Bog Organic
HUDSON BAY LOWLAND
Far North
CONIFEROUS FOREST
Sub-arctic Forest
Boreal Forest
MIXED FOREST
South East Mixed Forest
THE CANADIAN SHIELD
Scale 1 mm = 19 km



THE CANADIAN SHIELD

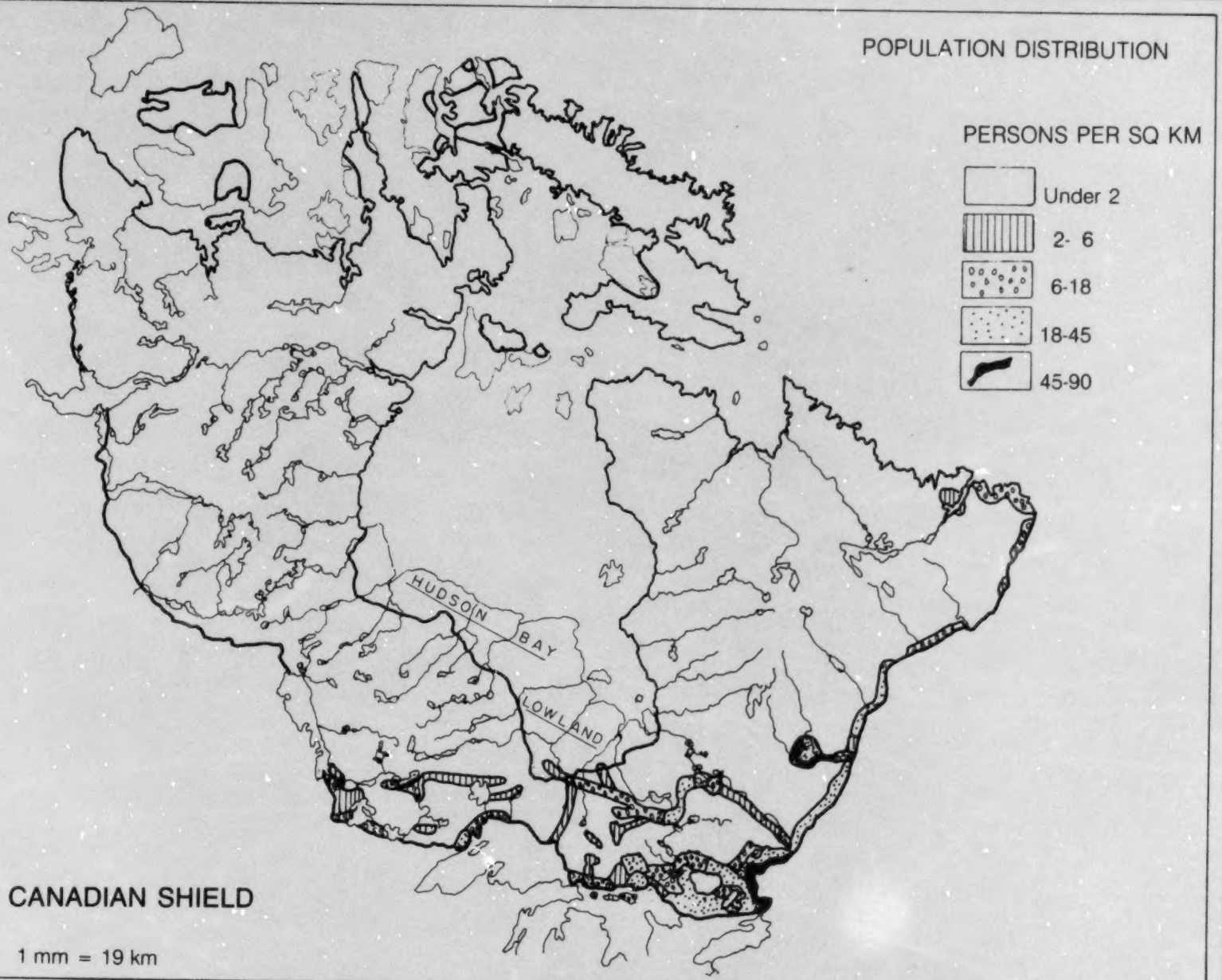
Scale 1 mm = 19 km



THE CANADIAN SHIELD

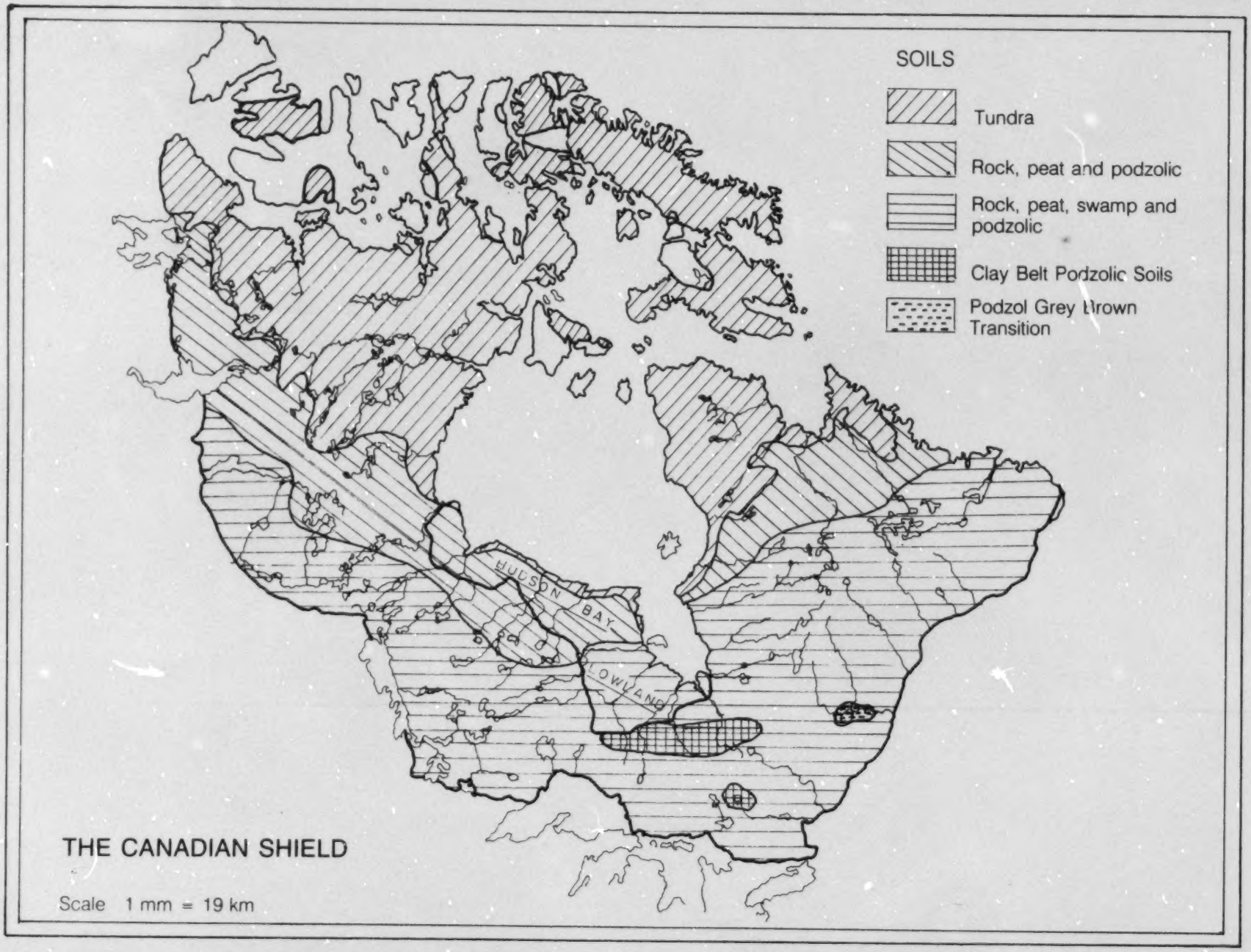
Scale 1 mm = 19 km

37



THE CANADIAN SHIELD

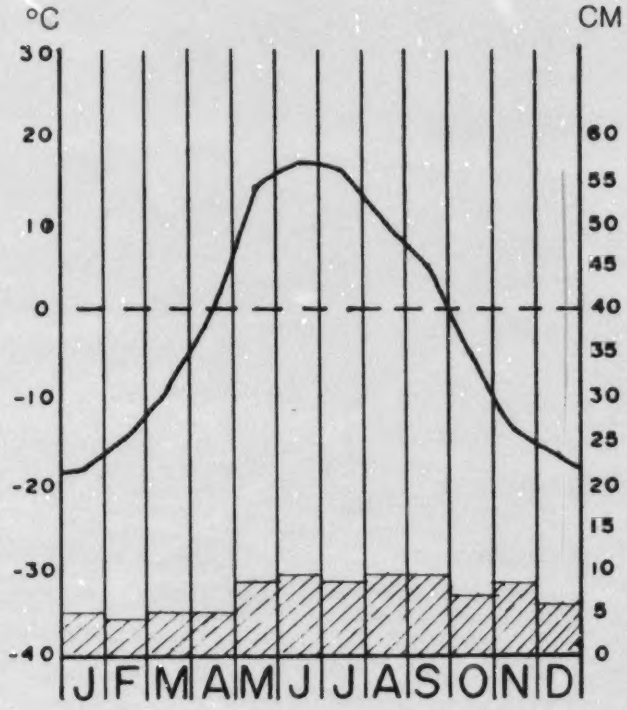
Scale 1 mm = 19 km



THE CANADIAN SHIELD

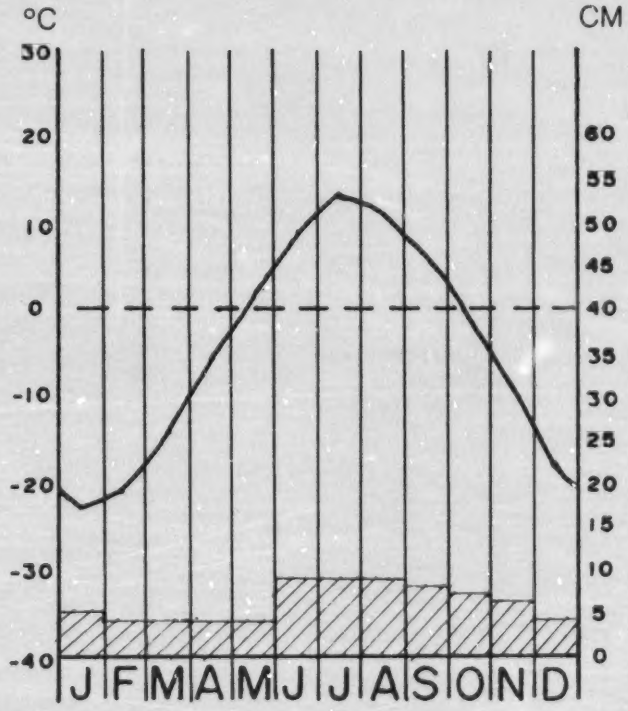
Scale 1 mm = 19 km

THE CANADIAN SHIELD



KAPUSKASING

BAR — PRECIPITATION
LINE — TEMPERATURE



SCHEFFERVILLE

6 THE FAR NORTH

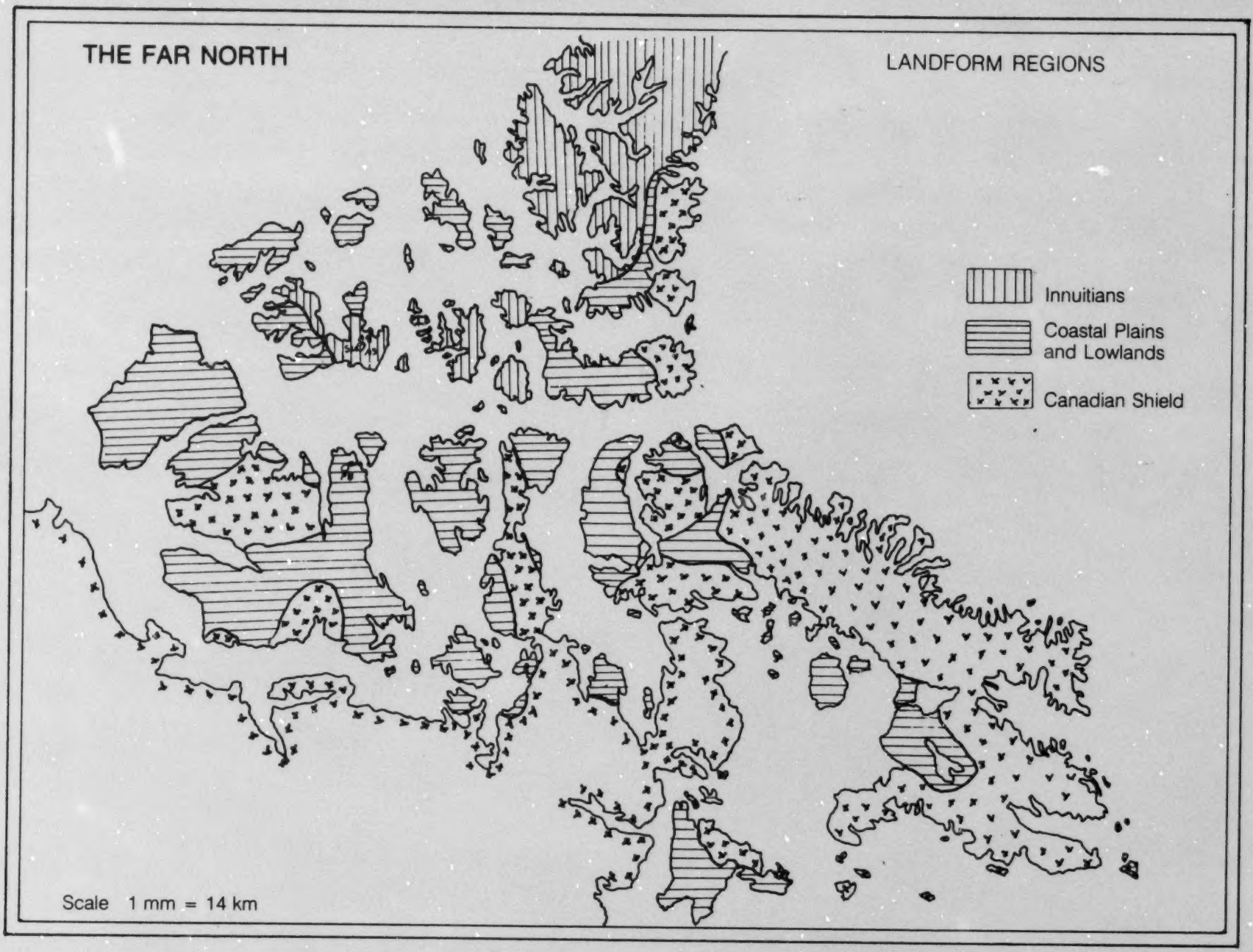
The Far North is the least known part of Canada. It fringes upon the northern part of the Canadian Shield and includes most of the islands in the Canadian Arctic. While Canada shares several regions with the United States, in the case of the Far North, it also shares a region with the Soviet Union. Cape Columbia in northern Ellesmere Island lies 3 500 kilometres north from James Bay, and James Bay is 'up north' for most Canadians.

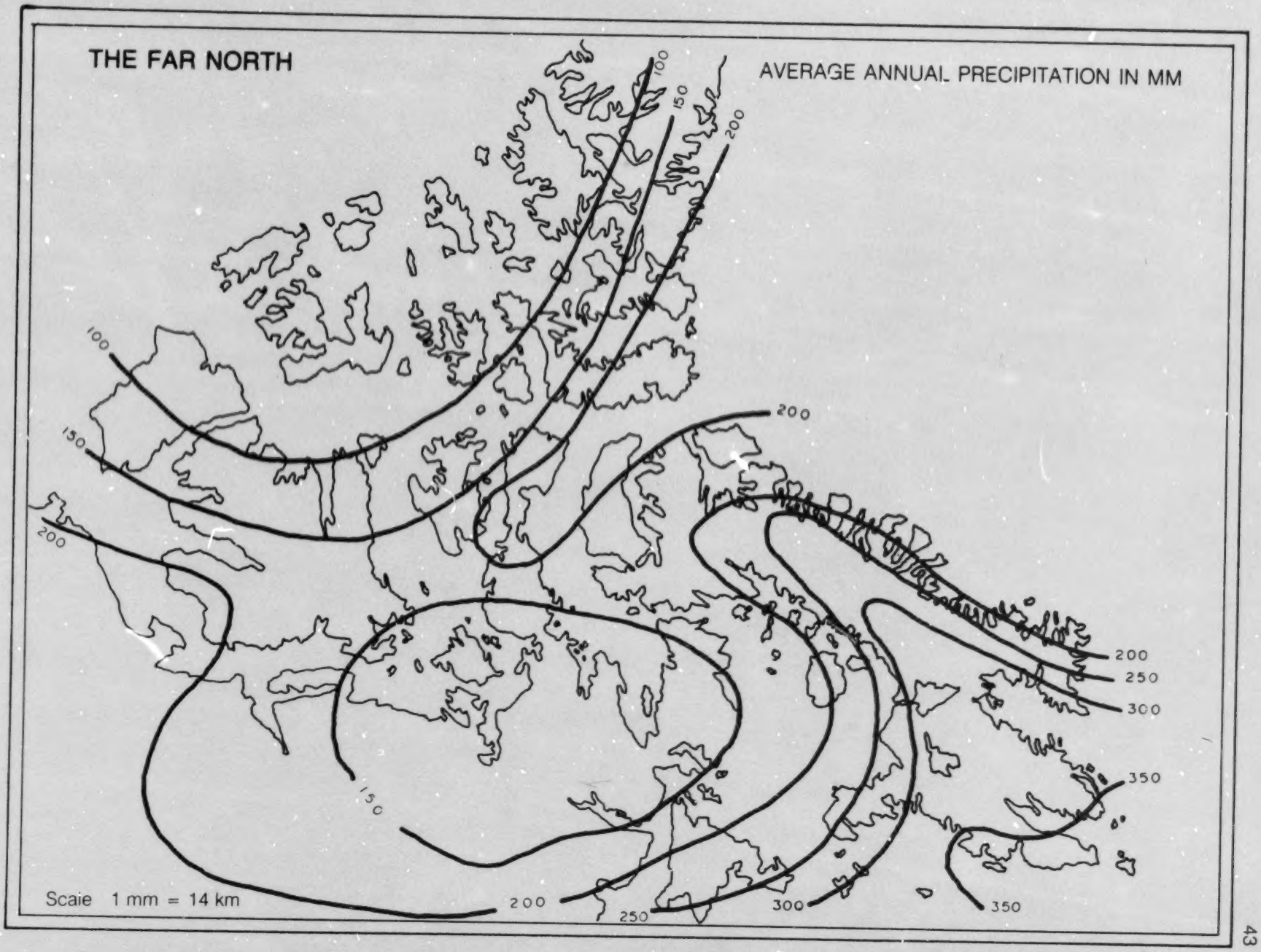
Fold mountains with narrow coastal plains are features of the Far North. However, many of the islands are areas of low relief. While only about 5% of Arctic Canada is permanently ice-covered, there are many icefields and glaciers.

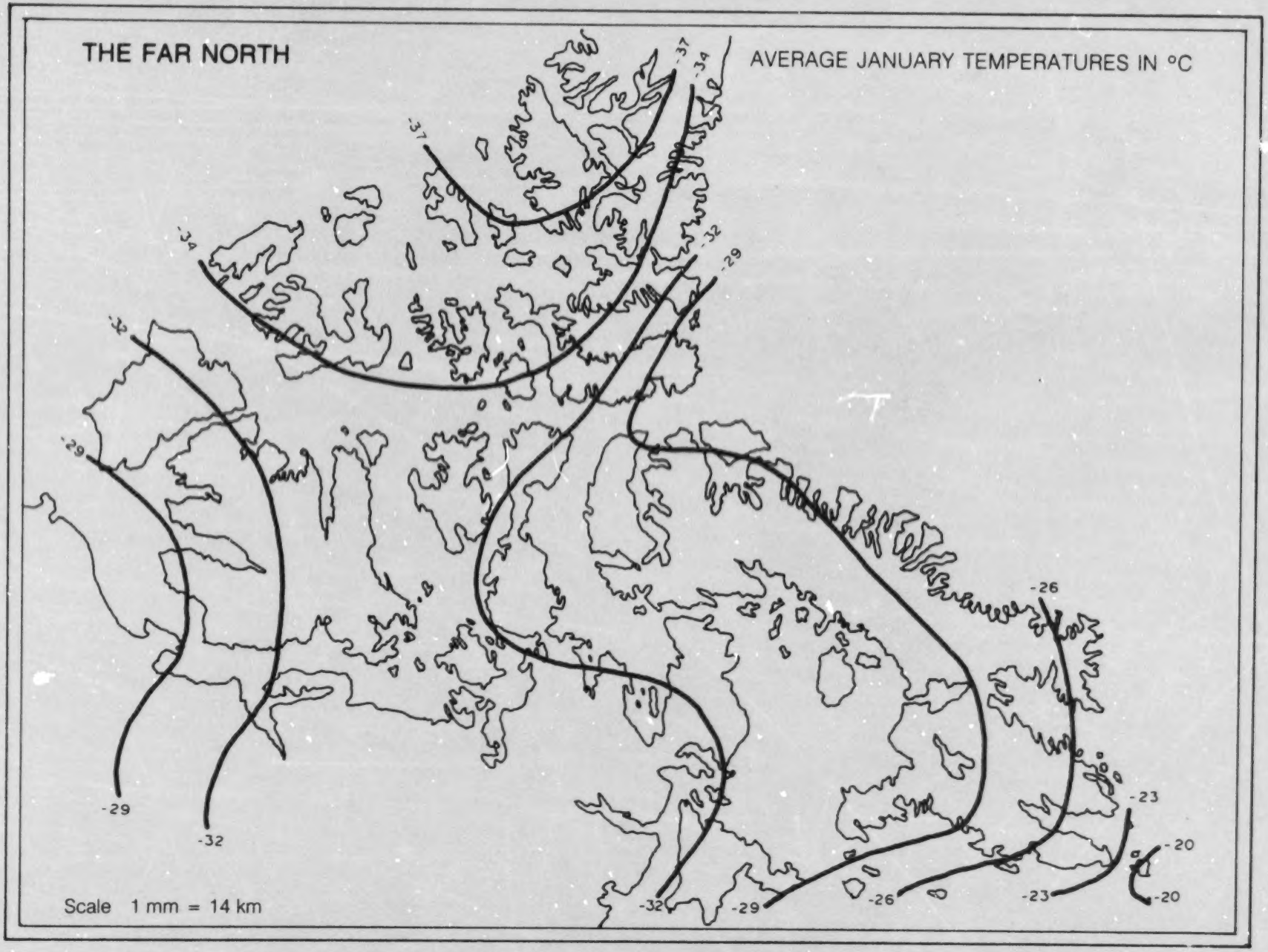
Winters are long and cold. There are few hours of daylight. The wind, its force unbroken by trees, lowers already low temperatures. Temperatures of $-50°C$ are common. Summer days are very long. Several weeks of warm, sunny weather can produce surprisingly high temperatures, and continuous sunshine working on the very low winter snowfall may actually clear parts of the Far North before areas to the south are uncovered. Melting seldom goes beyond the surface. Beneath, anywhere from a few centimetres to a metre or more in depth, ground ice and permafrost are certain to occur.

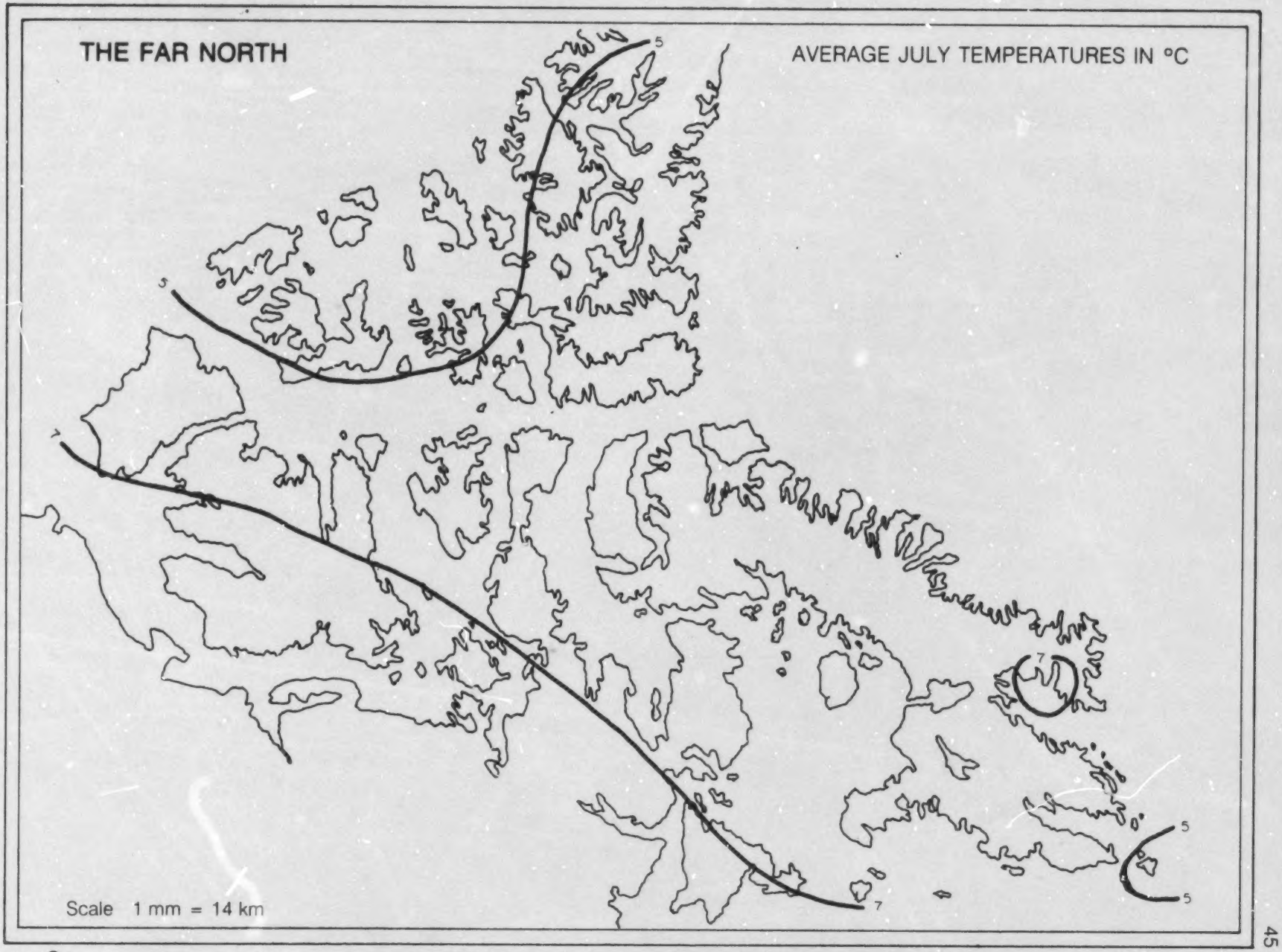
Permafrost creates enormous problems. The frozen layer prevents drainage, hampers waste disposal, limits the spread of plant roots and restricts mining. It creates worse problems if temporarily melted, so structures must be carefuly insulated, usually by expensive gravel platforms. Thus oil must be warmed for pumping but gas, which is naturally warm, is sometimes refrigerated because of the problems it causes by melting the permafrost. Pipelines must be heavily insulated, not only to preserve the heat of the contents, but to protect the underlying permafrost.

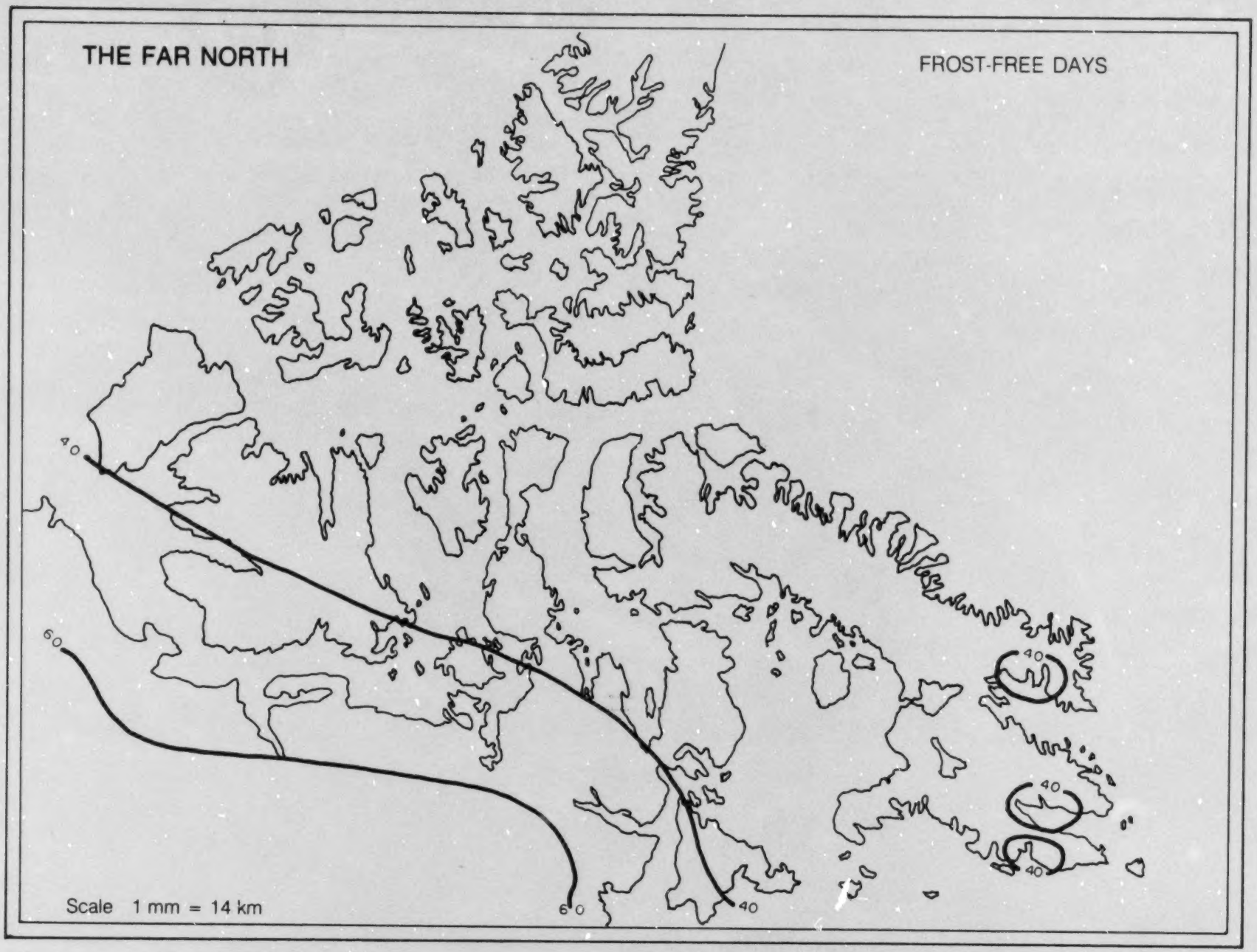
The northern environment is fragile. Matter does not break down easily and discarded waste remains unsightly almost forever. Bulldozer tracts are clearly visible 25 years after they are made. Few Canadians have firsthand knowledge of the area. And of those few, except for the native Inuit, most have spent only a short time there, researching, prospecting, or maintaining military installations.

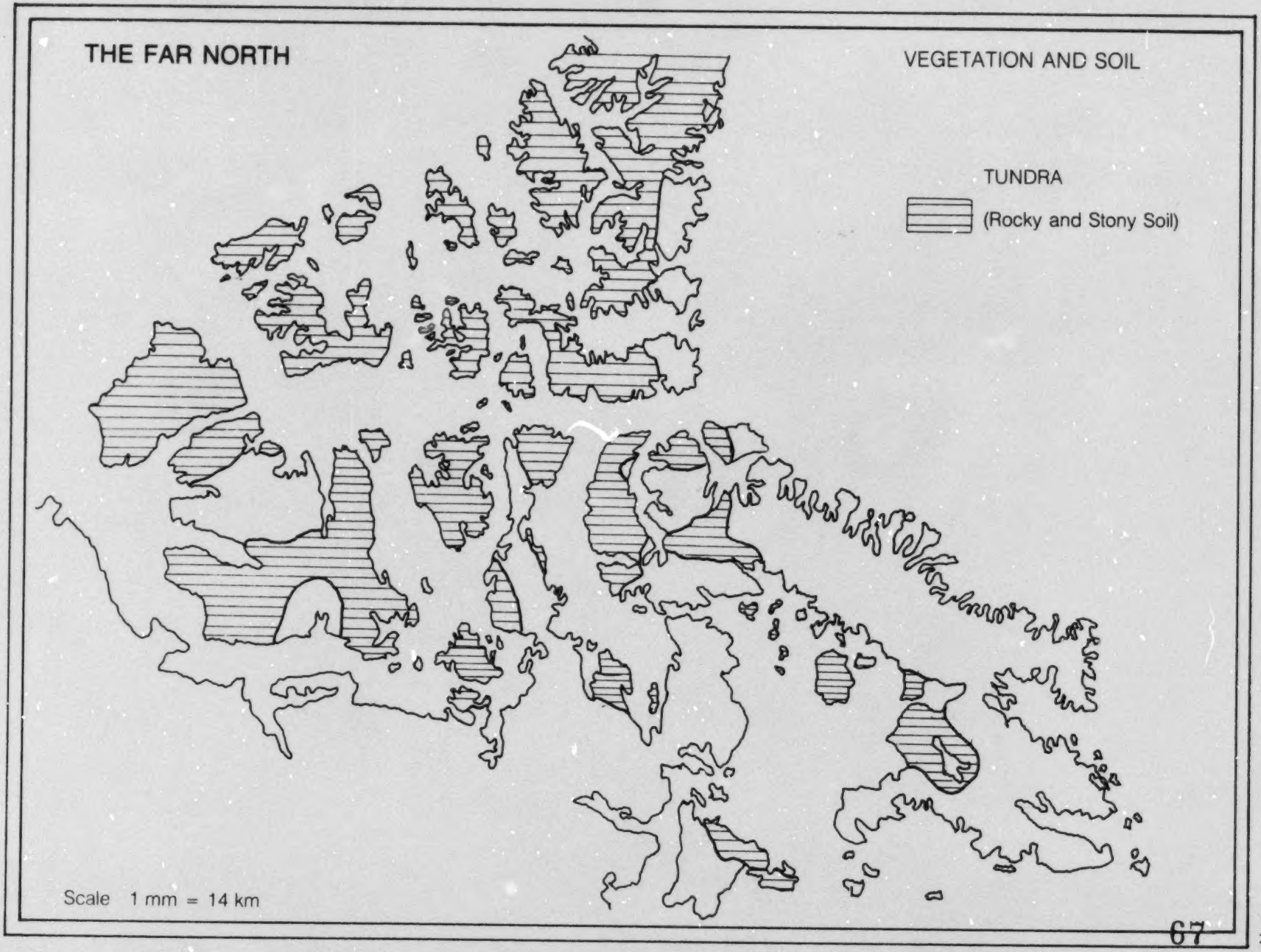

THE FAR NORTH
LANDFORM REGIONS
Innuitians
Coastal Plains and Lowlands
Canadian Shield
Scale 1 mm = 14 km


THE FAR NORTH
AVERAGE ANNUAL PRECIPITATION IN MM
100
150
200
100
150
200
200
150
200
250
300
350
Scaie 1 mm = 14 km
200
250
300
350


THE FAR NORTH
AVERAGE JANUARY TEMPERATURES IN °C
-37
-34
-32
-29
-26
-23
-20
Scale 1 mm = 14 km

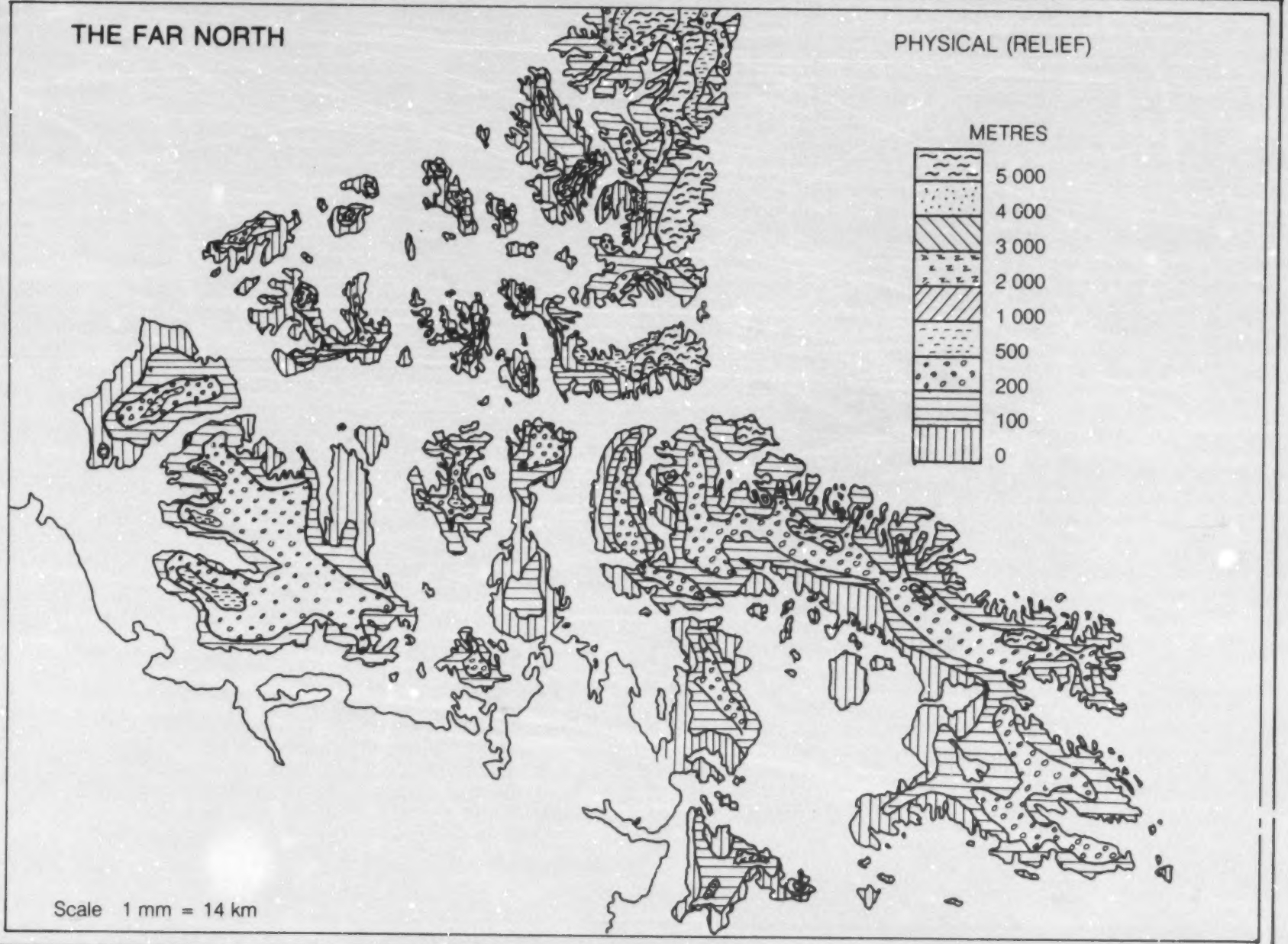

THE FAR NORTH
AVERAGE JULY TEMPERATURES IN °C
5
5
7
7
5
5
Scale 1 mm = 14 km

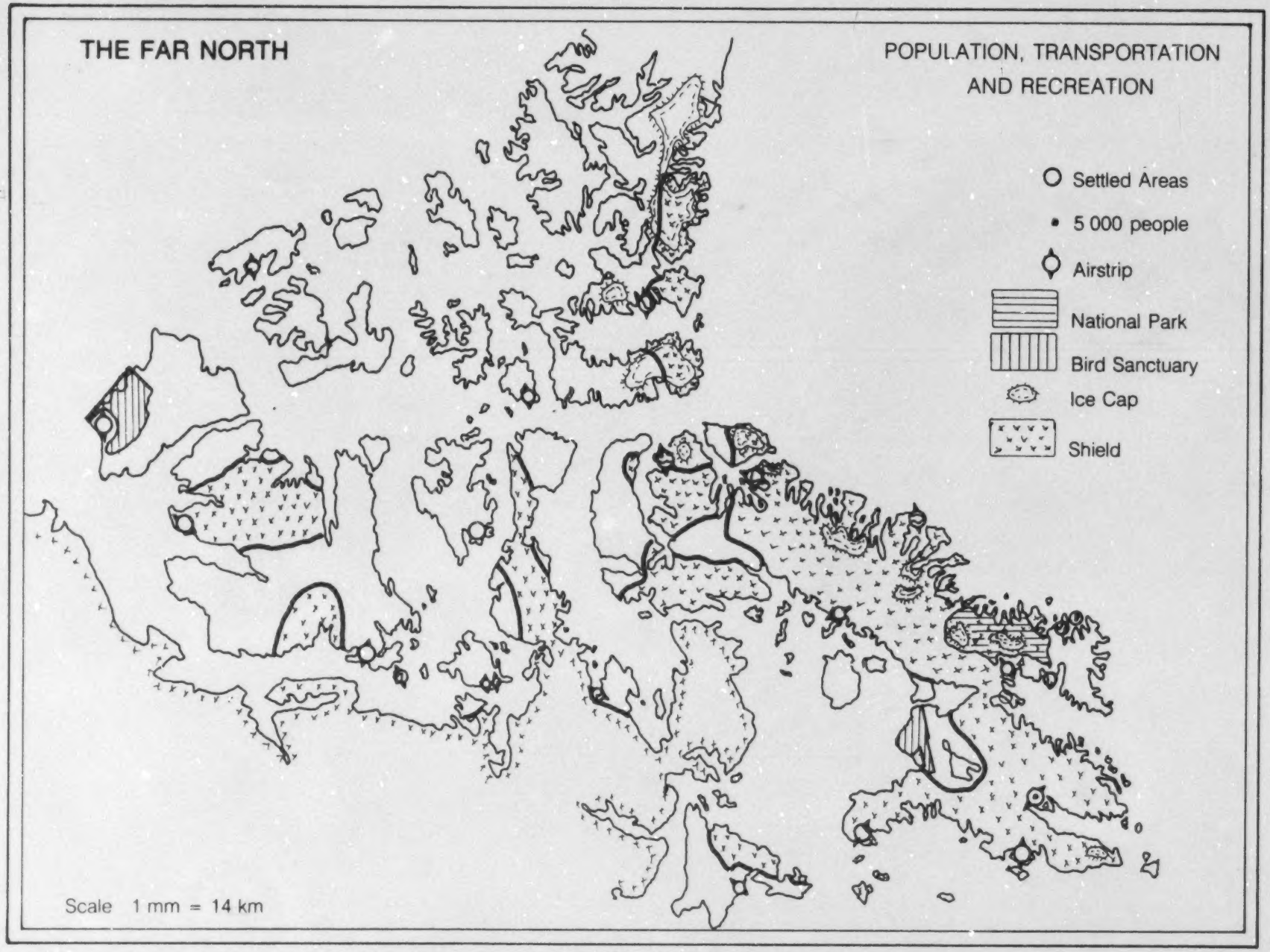

THE FAR NORTH
FROST-FREE DAYS
40
60
40
40
40
40
60
40
Scale 1 mm = 14 km


THE FAR NORTH
VEGETATION AND SOIL
TUNDRA
(Rocky and Stony Soil)
Scale 1 mm = 14 km

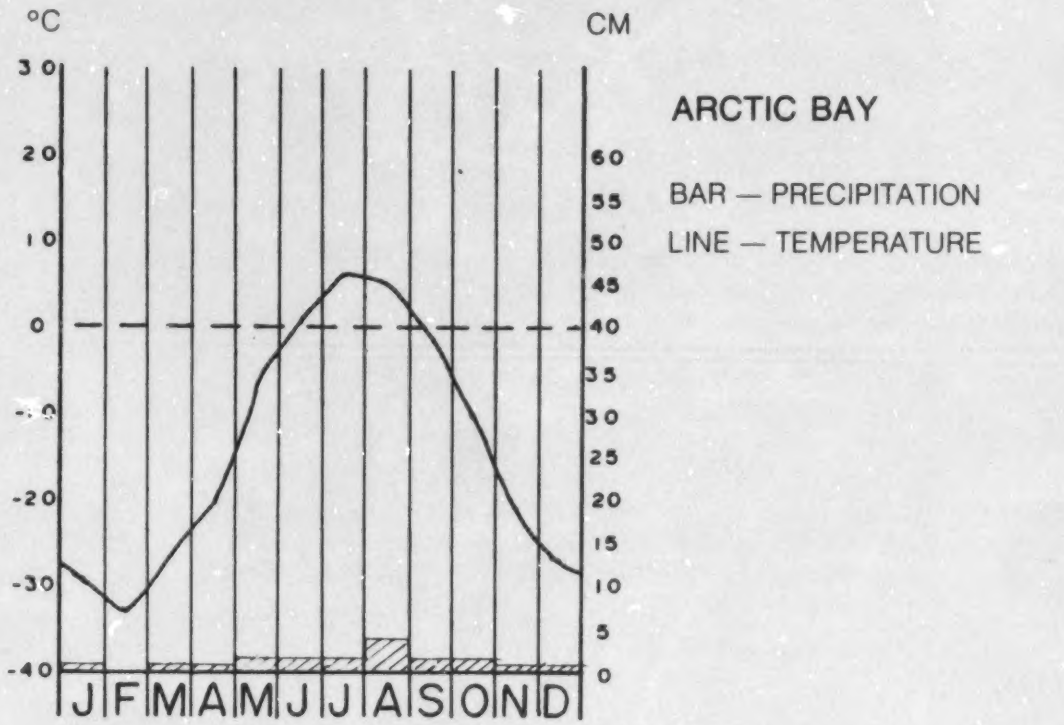
66

67


THE FAR NORTH
PHYSICAL (RELIEF)
METRES
5 000
4 000
3 000
2 000
1 000
500
200
100
0
Scale 1 mm = 14 km

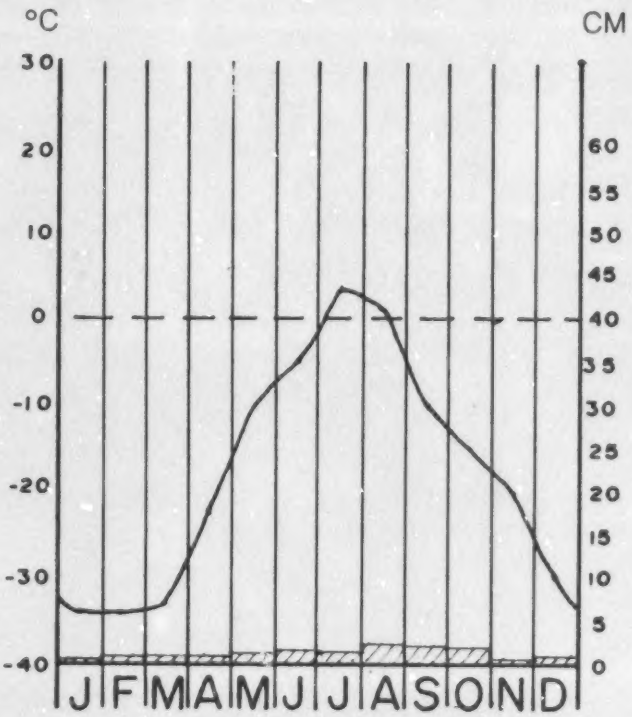

THE FAR NORTH
POPULATION, TRANSPORTATION AND RECREATION
Settled Areas
5 000 people
Airstrip
National Park
Bird Sanctuary
Ice Cap
Shield
Scale 1 mm = 14 km

THE FAR NORTH



ARCTIC BAY

BAR — PRECIPITATION
LINE — TEMPERATURE



ALERT

7 THE GREAT LAKES — ST. LAWRENCE LOWLANDS

Squeezed in between the massive Canadian Shield and the mountainous structure of the Appalachian region lies the Great Lakes - St. Lawrence Lowlands.

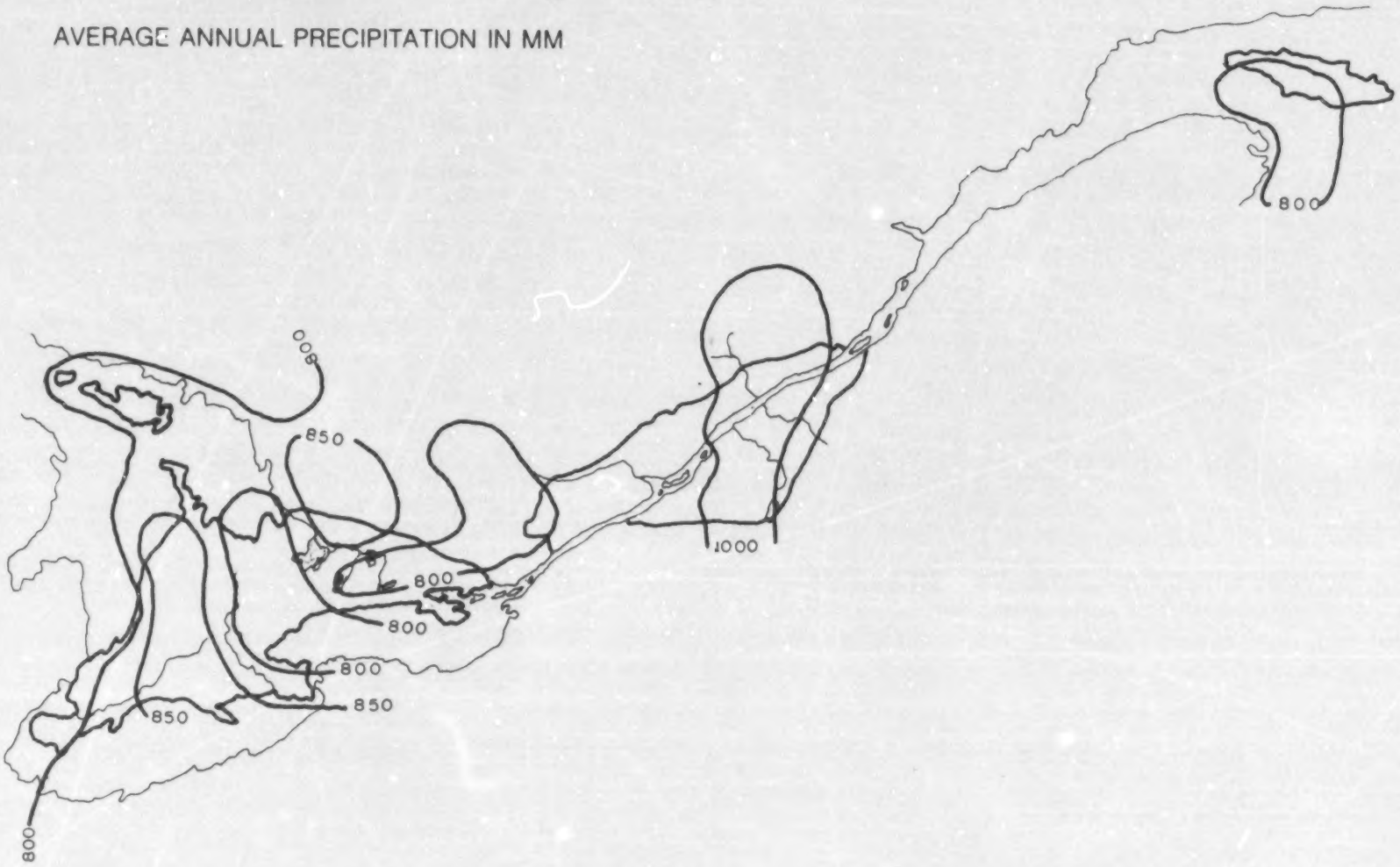
There are two distinct sectors divided by the Frontenac Axis — a southeastward projection of the Shield which forms the Thousands Islands where it crosses the St. Lawrence River.

The land is very flat. With the exception of Anticosti Island, the natural vegetation has been removed and the area densely settled. Agriculture, industry, and other man-made changes dominate an area once featuring mixed coniferous and deciduous forests.

The Great Lakes - St. Lawrence Lowlands are something of a battleground. Here, cold, dry Arctic air interacts with warm, moist Gulf air masses. The mix results in a wide variety of weather and unstable conditions leading to thunderstorms, ice storms, blizzards and dense fogs. As well, Arctic air will often cool the near tropical heat of summer and Gulf air can warm the dry cold of winter. Conditions are less extreme than in the Canadian Shield because winter temperatures are less severe.

THE GREAT LAKES — ST. LAWRENCE LOWLANDS

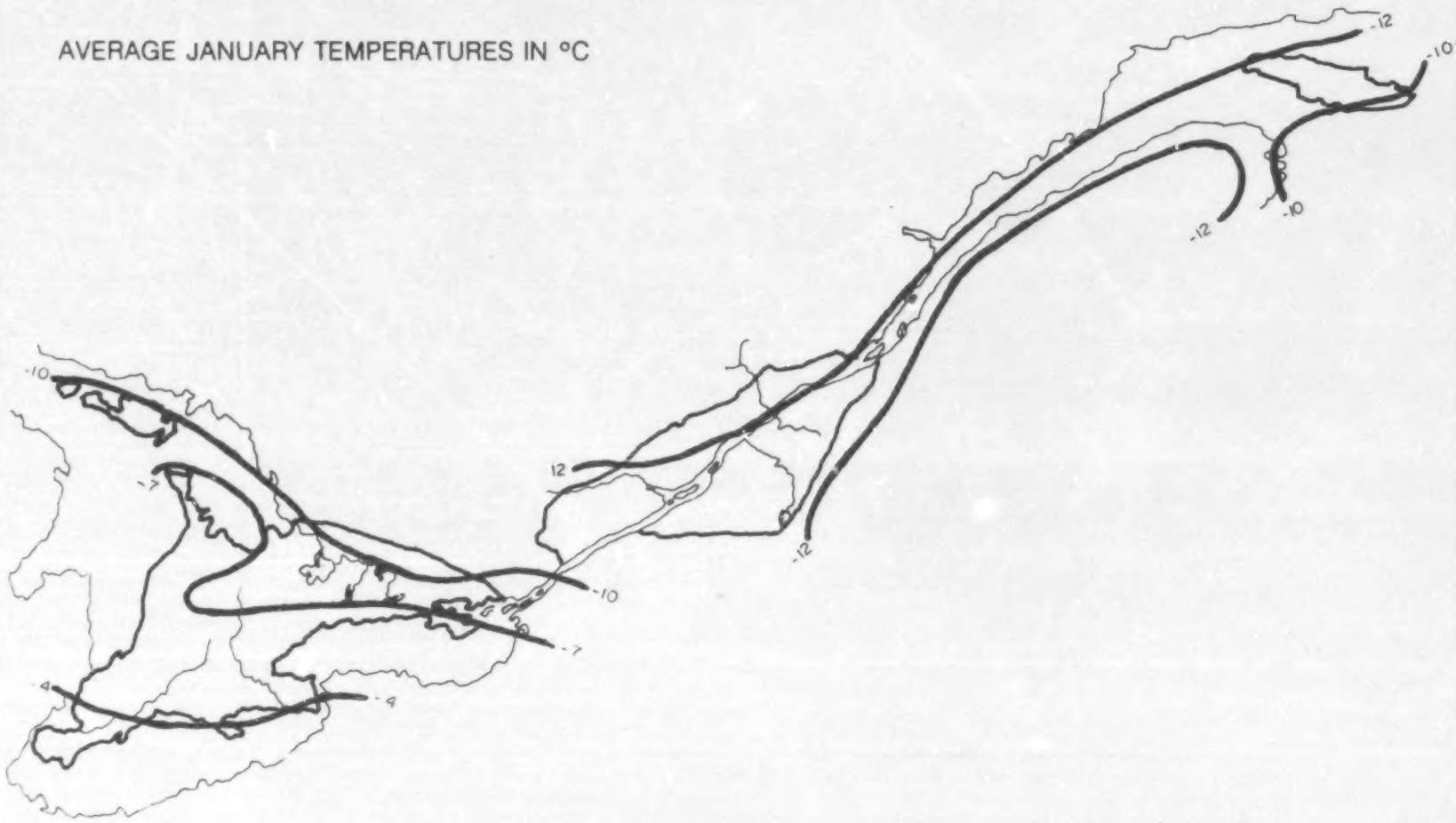
AVERAGE ANNUAL PRECIPITATION IN MM



Scale 1 mm = 7.5 km

THE GREAT LAKES — ST. LAWRENCE LOWLANDS

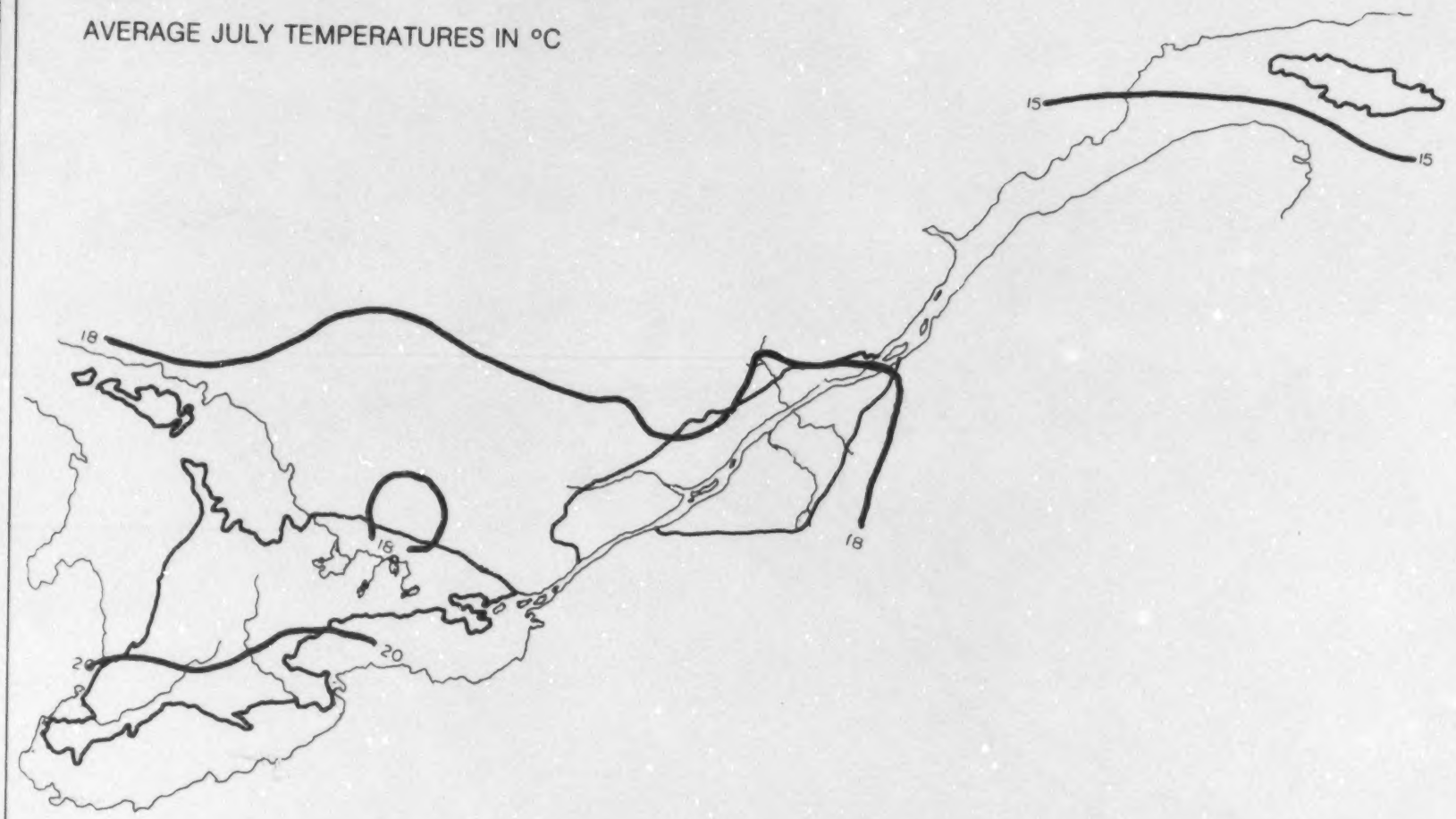
AVERAGE JANUARY TEMPERATURES IN °C



Scale 1 mm = 7.5 km

THE GREAT LAKES — ST. LAWRENCE LOWLANDS

AVERAGE JULY TEMPERATURES IN °C



Scale 1 mm = 7.5 km

THE GREAT LAKES — ST. LAWRENCE LOWLANDS

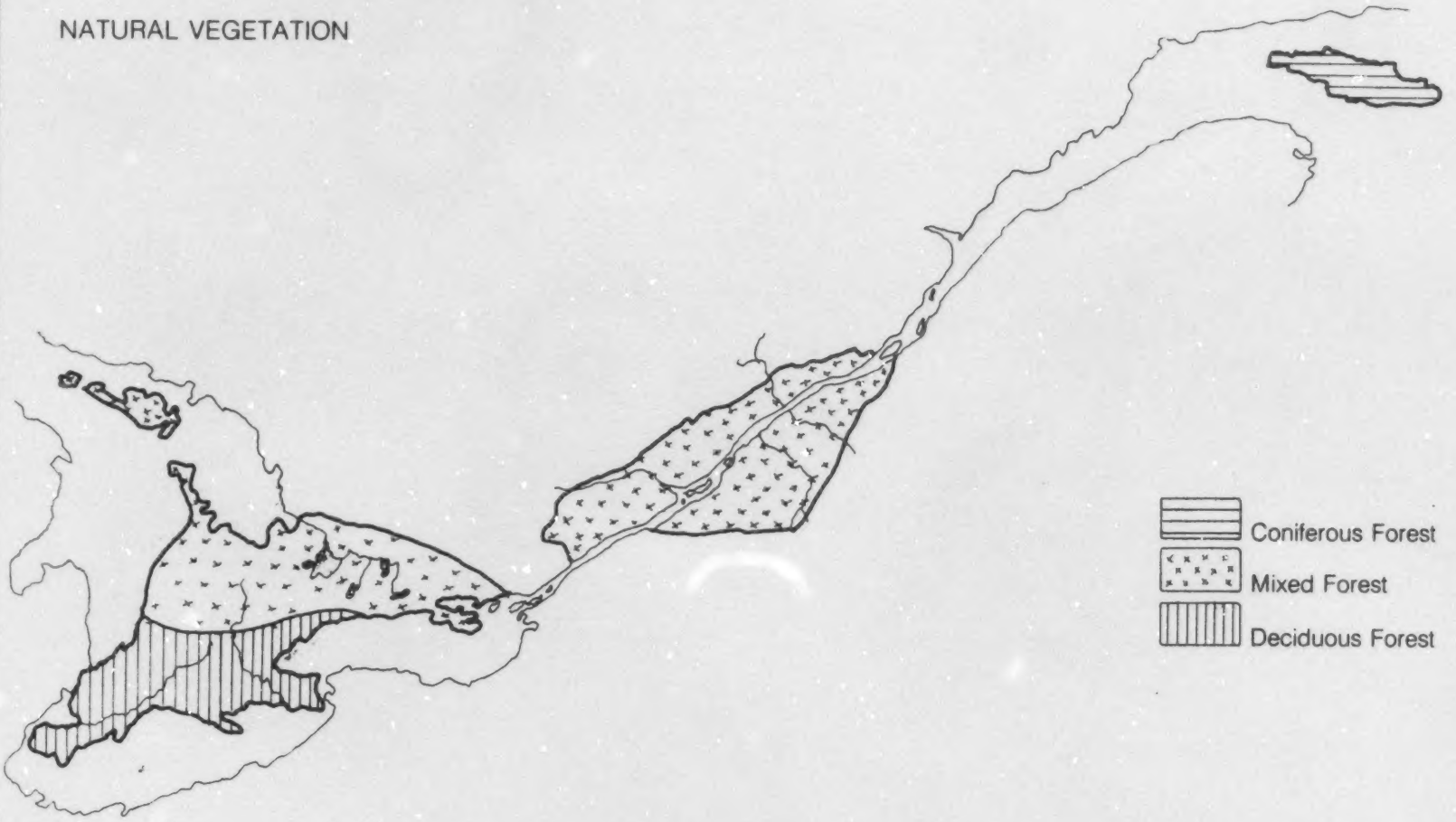
FROST-FREE DAYS

Scale 1 mm = 7.5 km

55

THE GREAT LAKES — ST. LAWRENCE LOWLANDS

NATURAL VEGETATION



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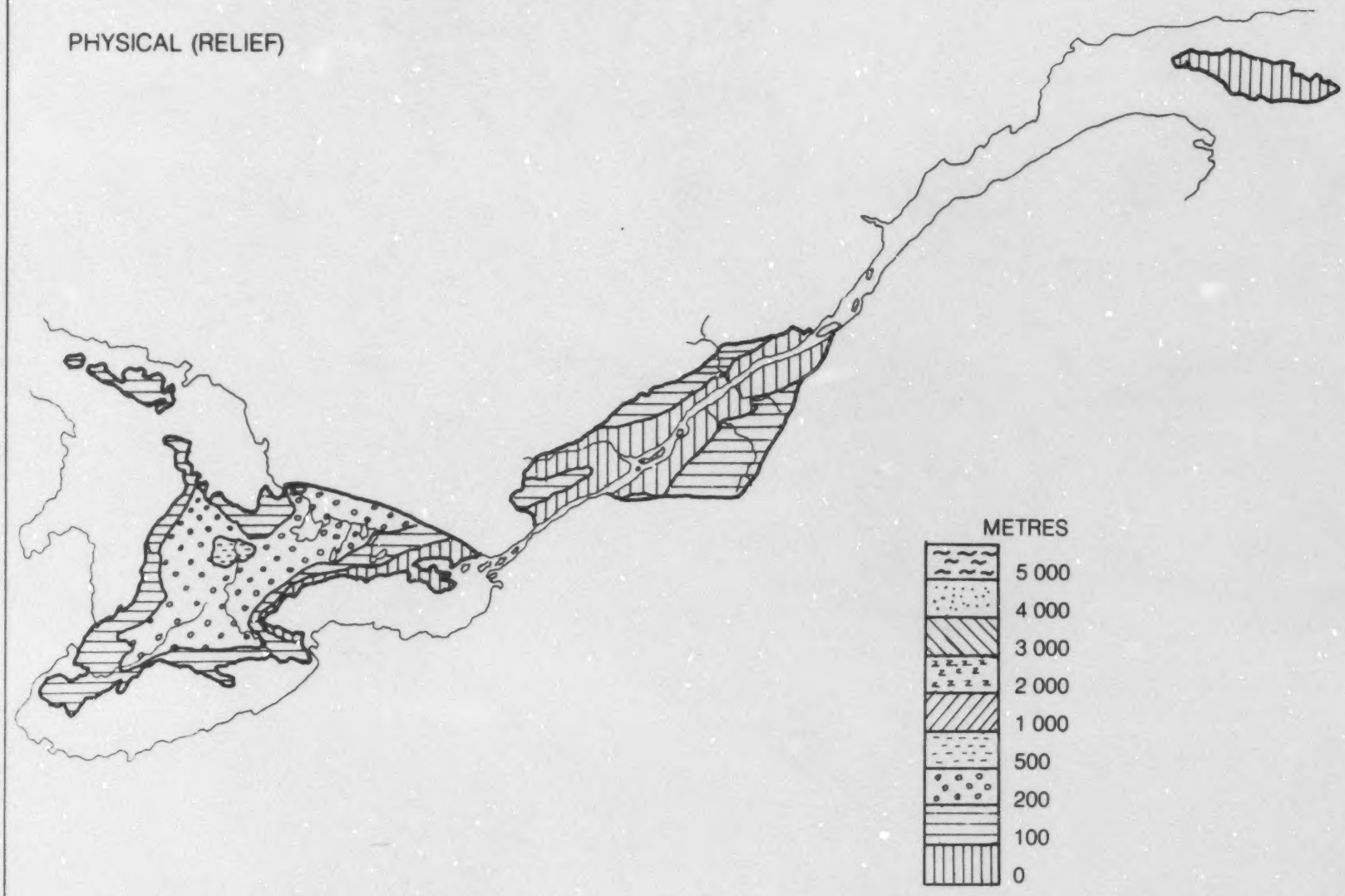
THE GREAT LAKES — ST. LAWRENCE LOWLANDS

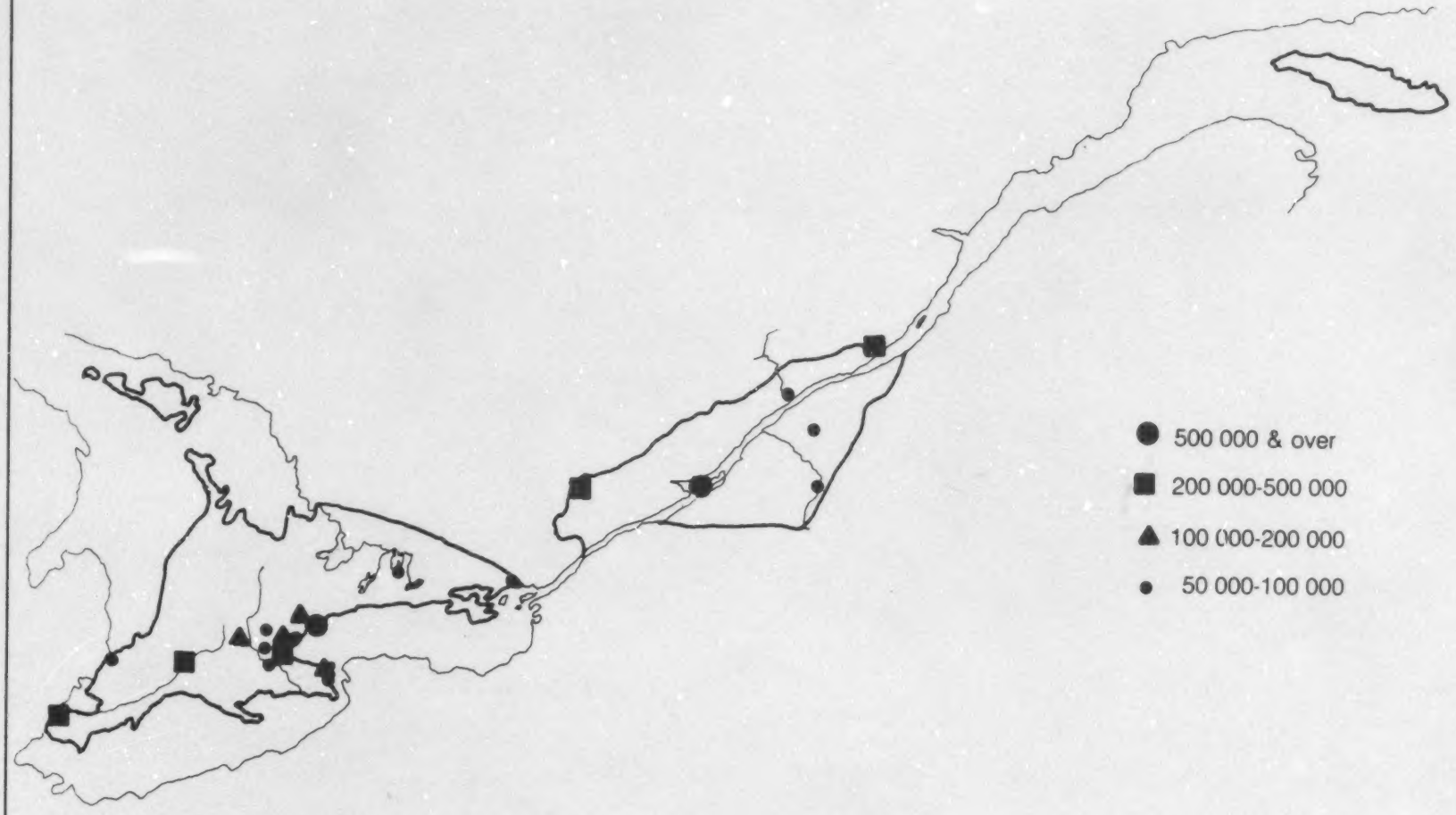
PHYSICAL (RELIEF)



Scale 1 mm = 7.5 km

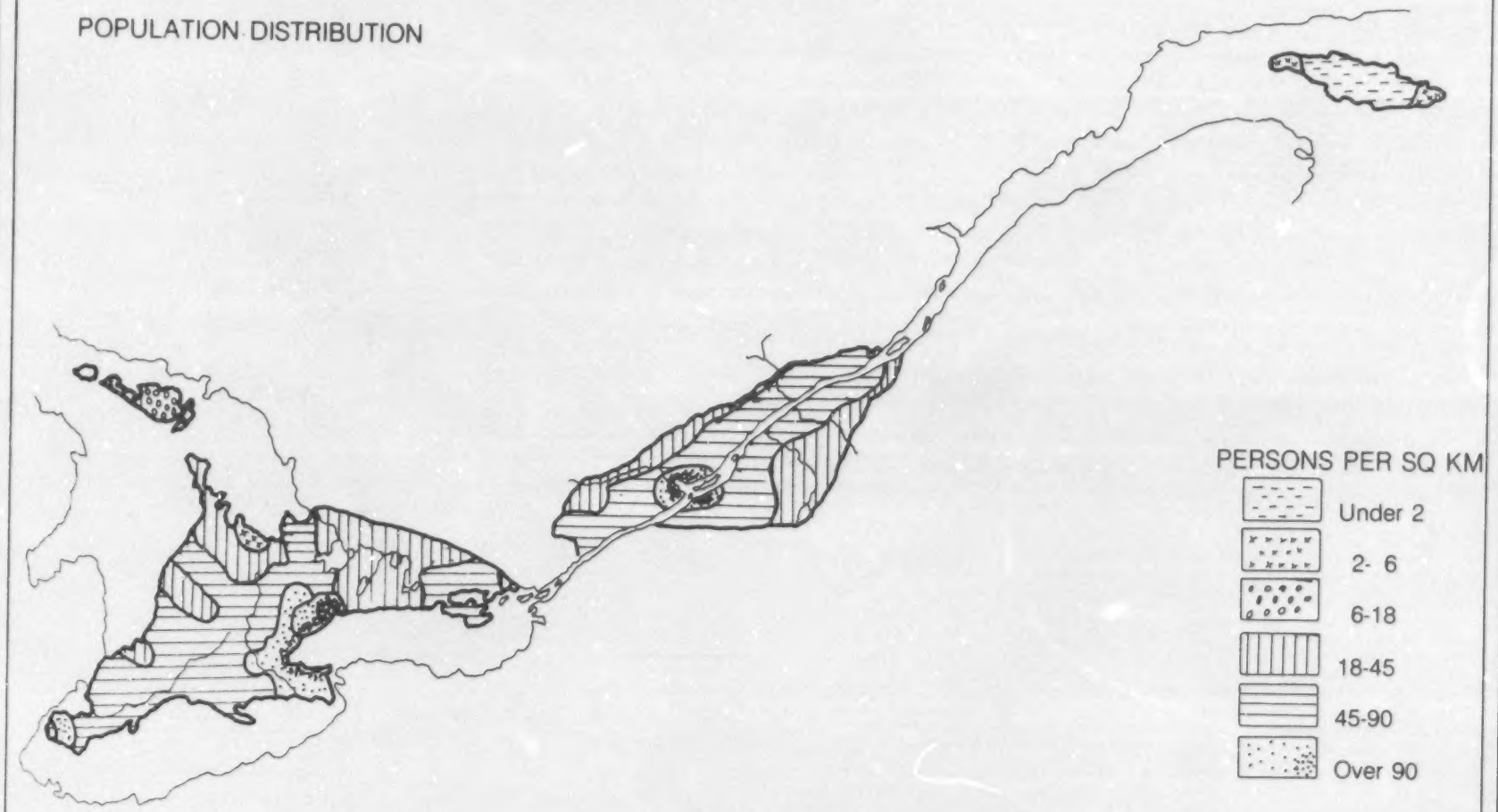
THE GREAT LAKES — ST. LAWRENCE LOWLANDS

POPULATION CENTRES (URBAN)



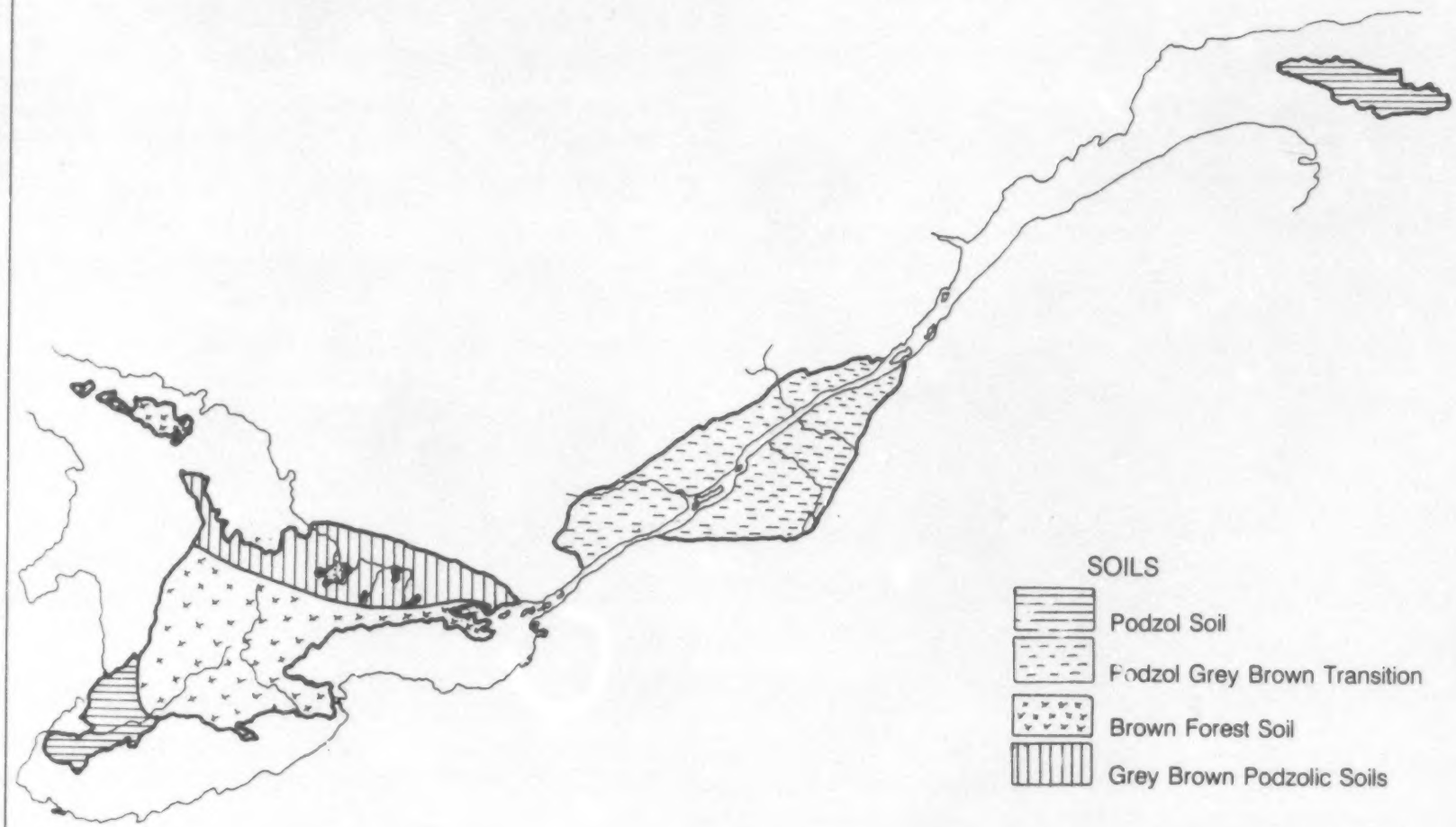
THE GREAT LAKES — ST. LAWRENCE LOWLANDS

POPULATION DISTRIBUTION



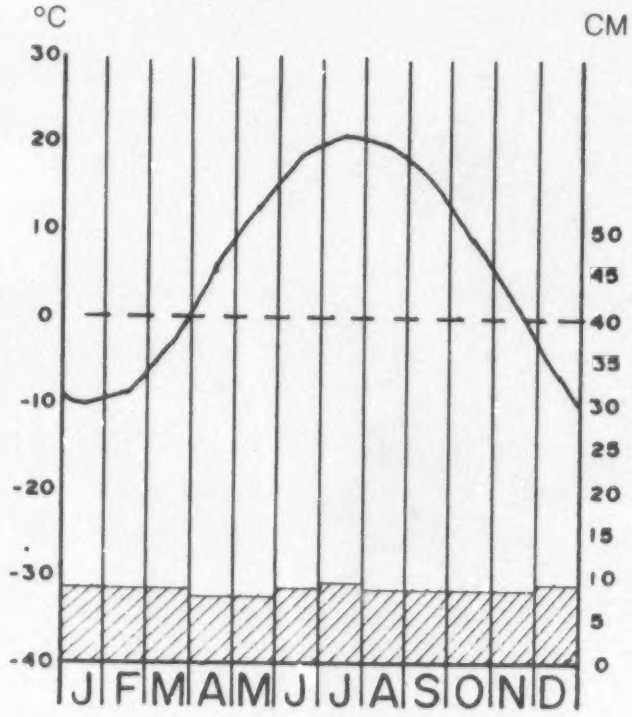
Scale 1 mm = 7.5 km

THE GREAT LAKES — ST. LAWRENCE LOWLANDS



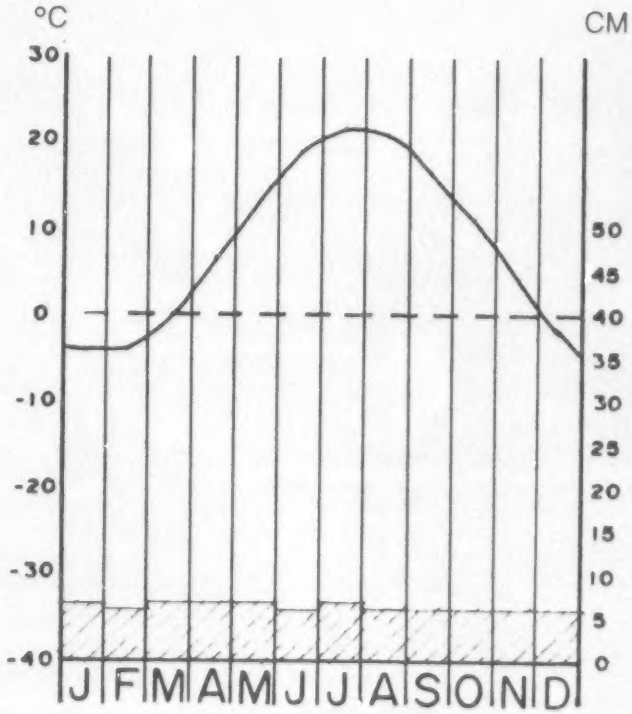
Scale 1 mm = 7.5 km

THE GREAT LAKES — ST. LAWRENCE LOWLANDS



MONTREAL

BAR — PRECIPITATION
LINE — TEMPERATURE



TORONTO

8 APPALACHIAN CANADA

Appalachian Canada is a region of low mountains, hills and rugged coasts. The sea, that surrounds much of it, is as outstanding as the landforms of which it is made. The many fine harbours and bays close by rich fishing grounds contrast with the somewhat limited landbased resources. Throughout history, people have looked to the sea for their livelihood. The lure of oil and gas leads many to focus their future offshore as well.

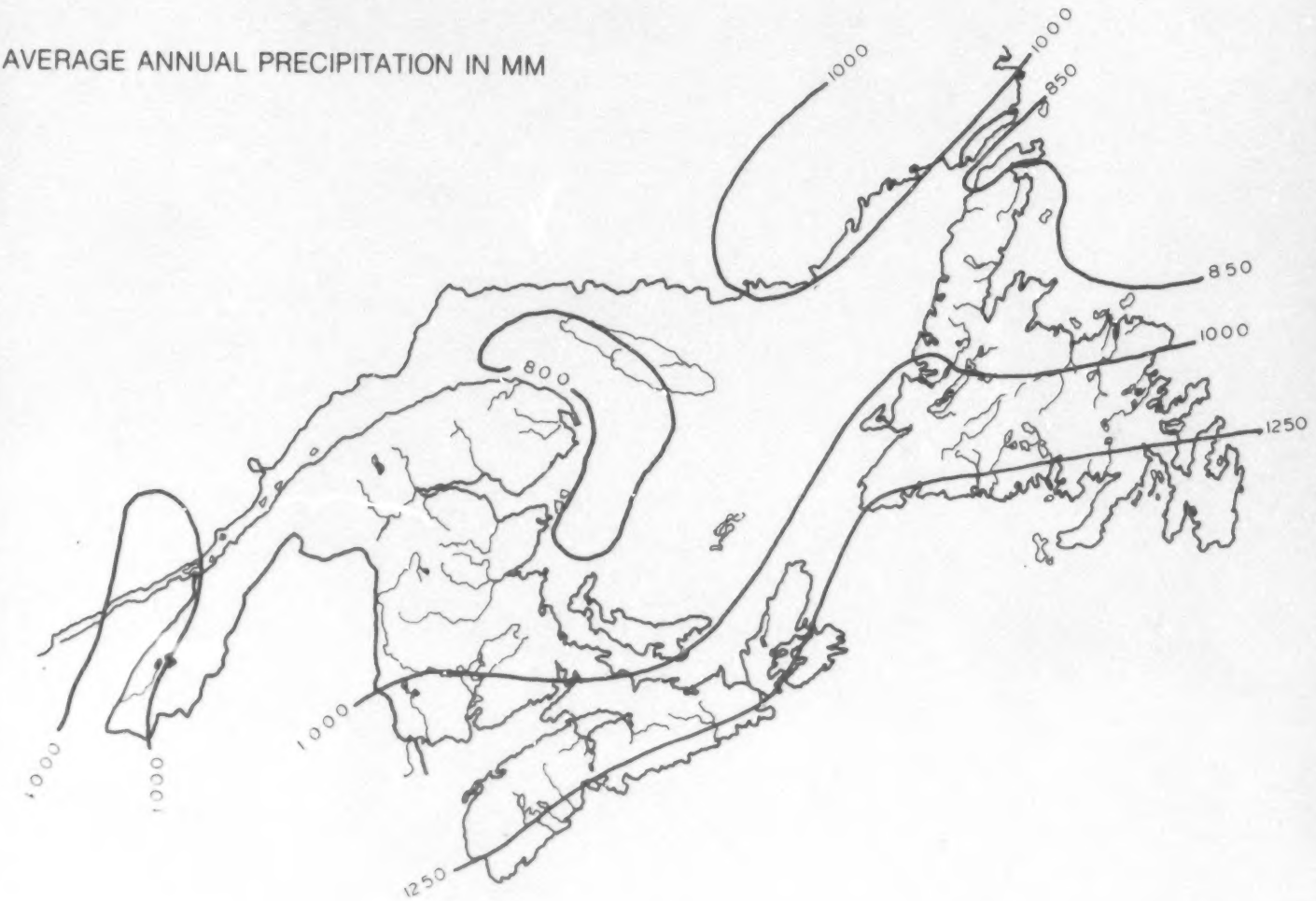
The landscape in the Appalachian region is smoothed and rounded in outline, the highest elevation being Mount Jacques Cartier in the Gaspe Peninsula (1 268 metres.) Hills and highlands scenery dominates, though it is broken by the generally flat-lying lowland areas of eastern New Brunswick, northern mainland Nova Scotia and, particularly Prince Edward Island. Rivers are very short by Canadian standards. Attractive lakes speckle the region, but they too are relatively small. The land extends under water to form a wide continental shelf. Fish breed in the shallow waters, oil and gas frequently lie below.

Mountain and sea combine together to cause a wide variety of local climates throughout Appalachian Canada. Winters are often stormy. Heavy snowfalls can occur, so can equally sudden thaws. Warm interior air is chilled by the sea in summer and this draws vacationers from the heat of the continent. Less appealing to many are the summer fogs which are also a product of the mixing of cold and warm air.

Once the Appalachian region was dominated by magnificent stands of pine. These have disappeared, as has the historical timber trade. The present forest of relatively small trees still supports a sizeable forestry industry. Newfoundland's central plateau and much of the Northern Peninsula, with its tundra vegetation, contrast with most of the rest of the region.

APPALACHIAN CANADA

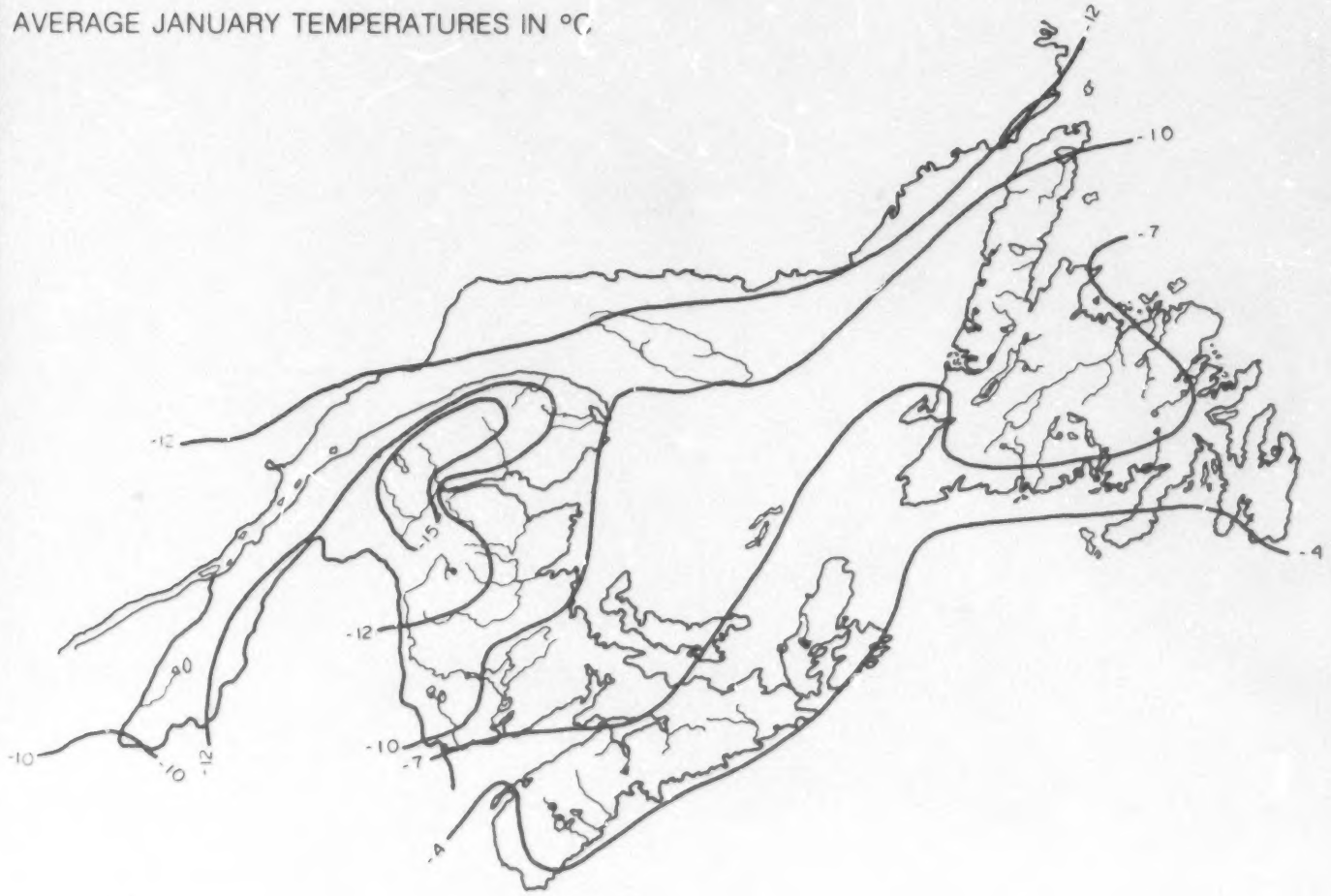
AVERAGE ANNUAL PRECIPITATION IN MM



Scale 1 mm = 8 km

APPALACHIAN CANADA

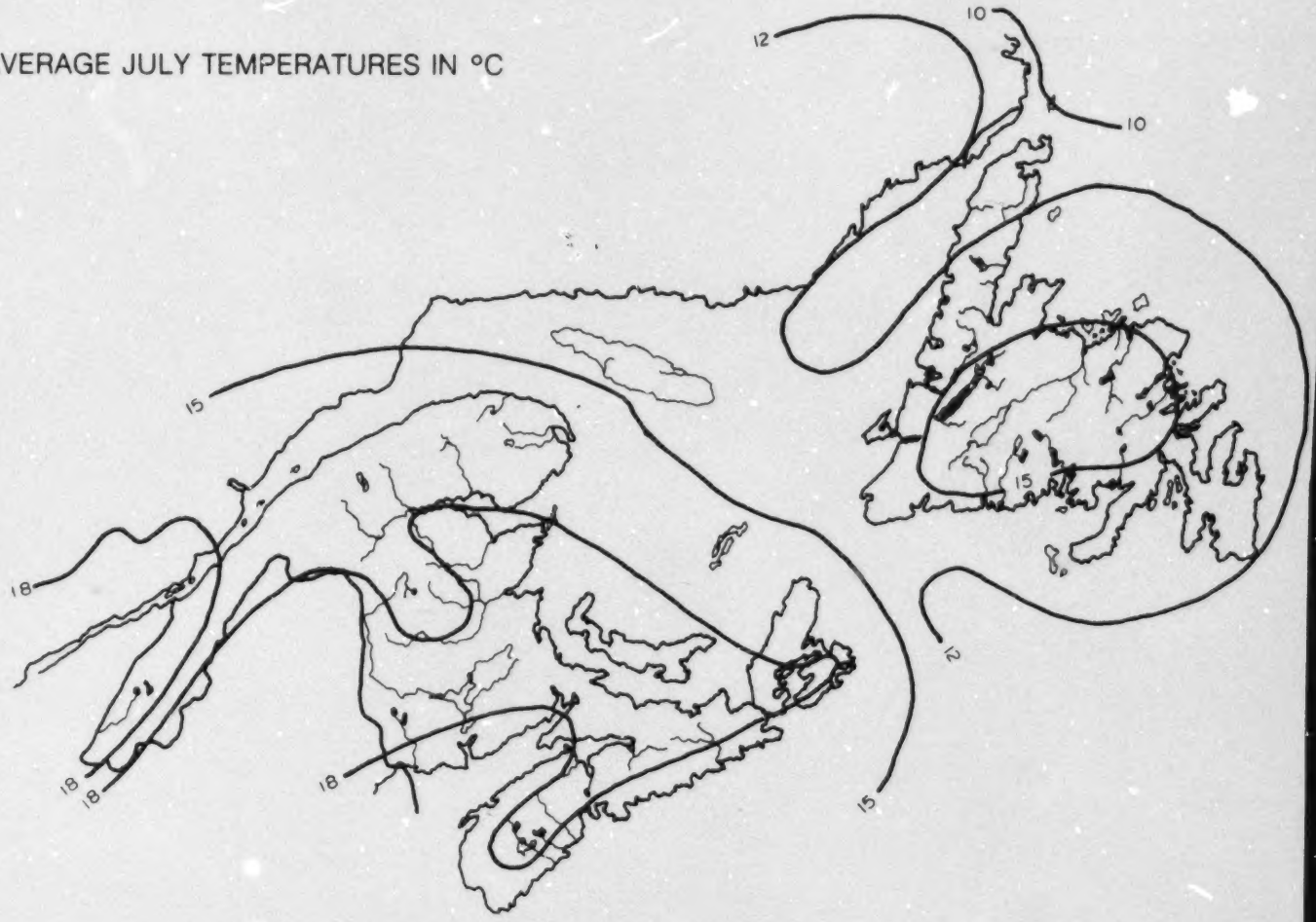
AVERAGE JANUARY TEMPERATURES IN °C



Scale 1 mm = 8 km

APPALACHIAN CANADA

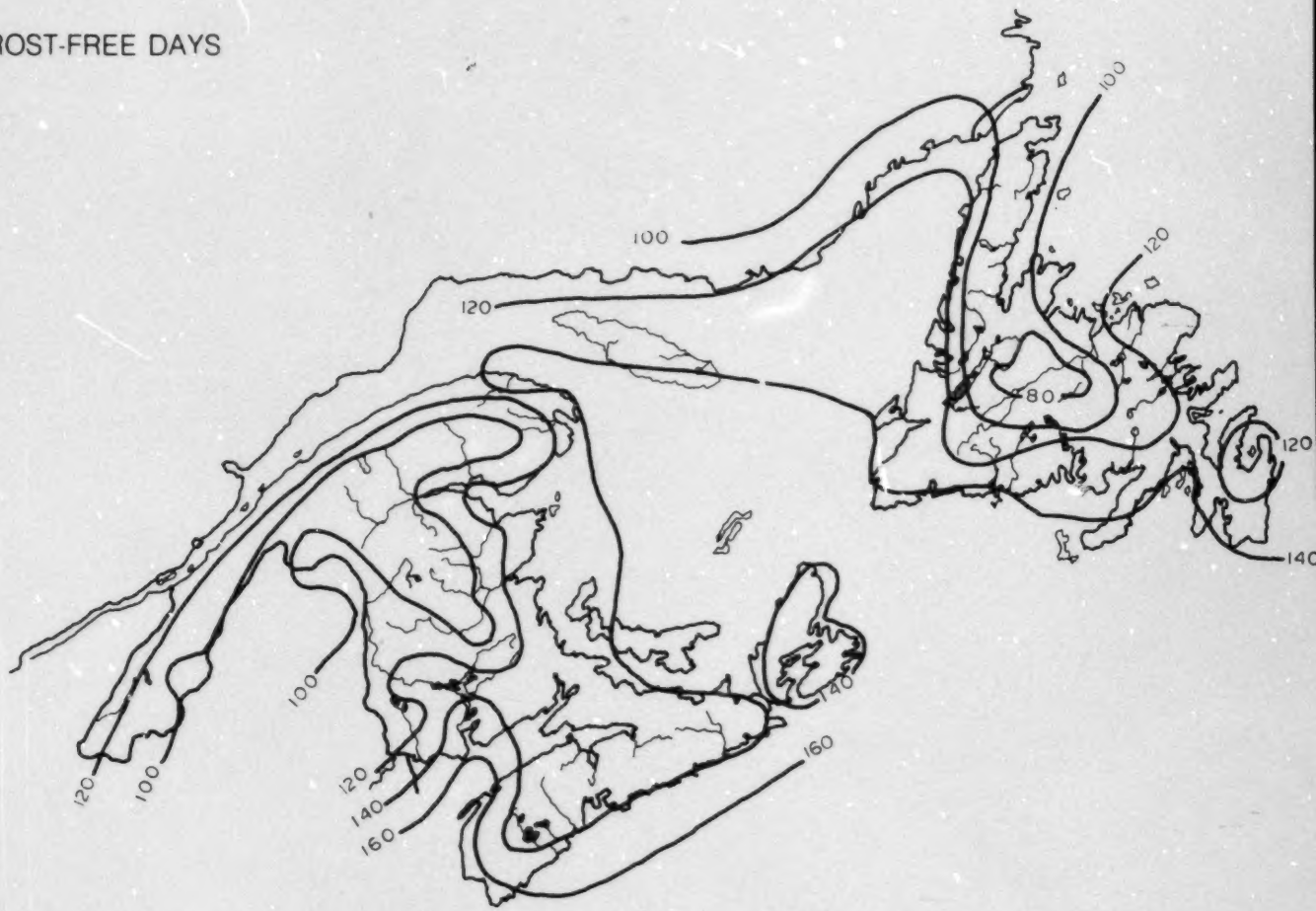
AVERAGE JULY TEMPERATURES IN °C



Scale 1 mm = 8 km

APPALACHIAN CANADA

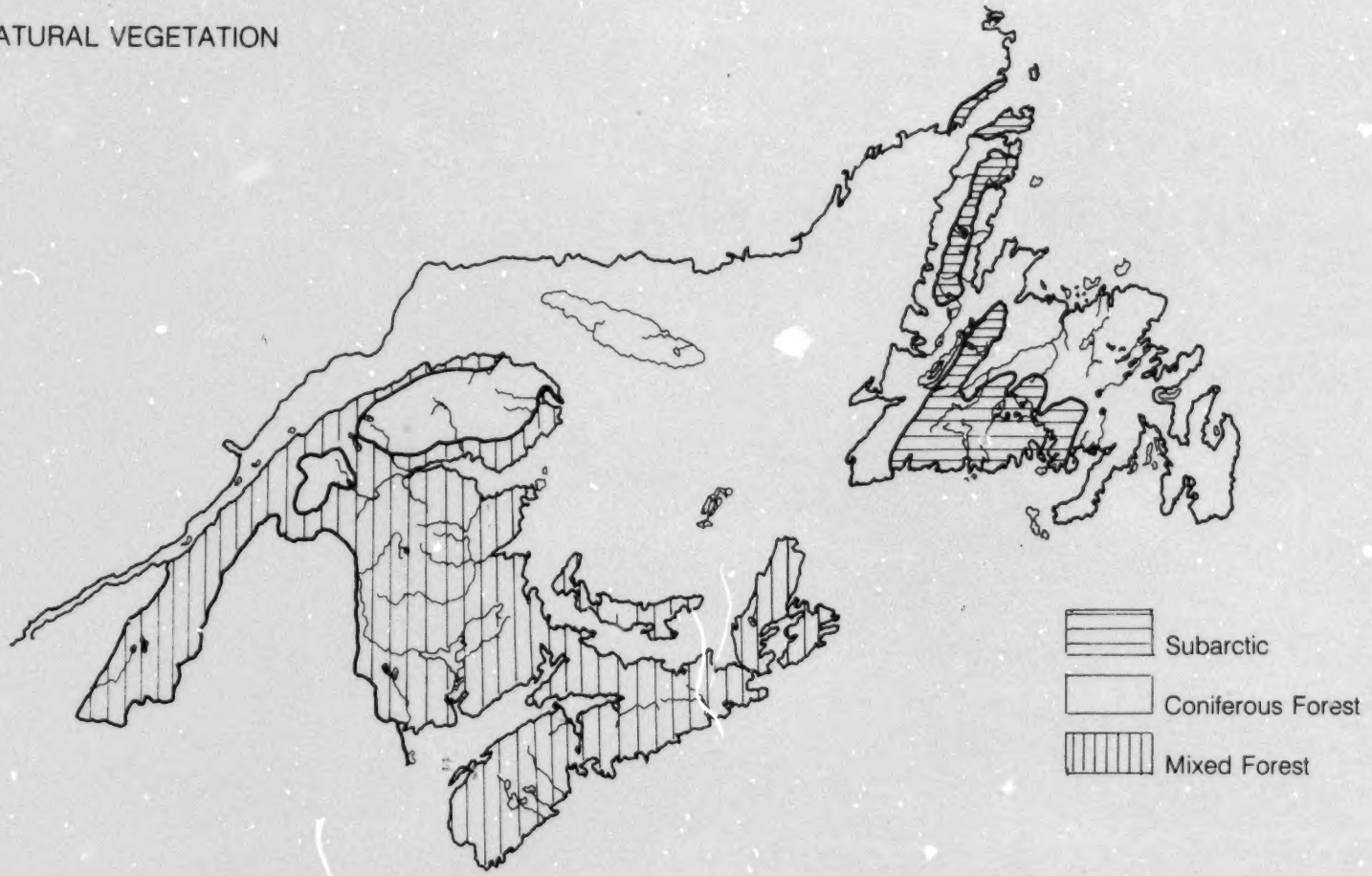
FROST-FREE DAYS



Scale 1 mm = 8 km

APPALACHIAN CANADA

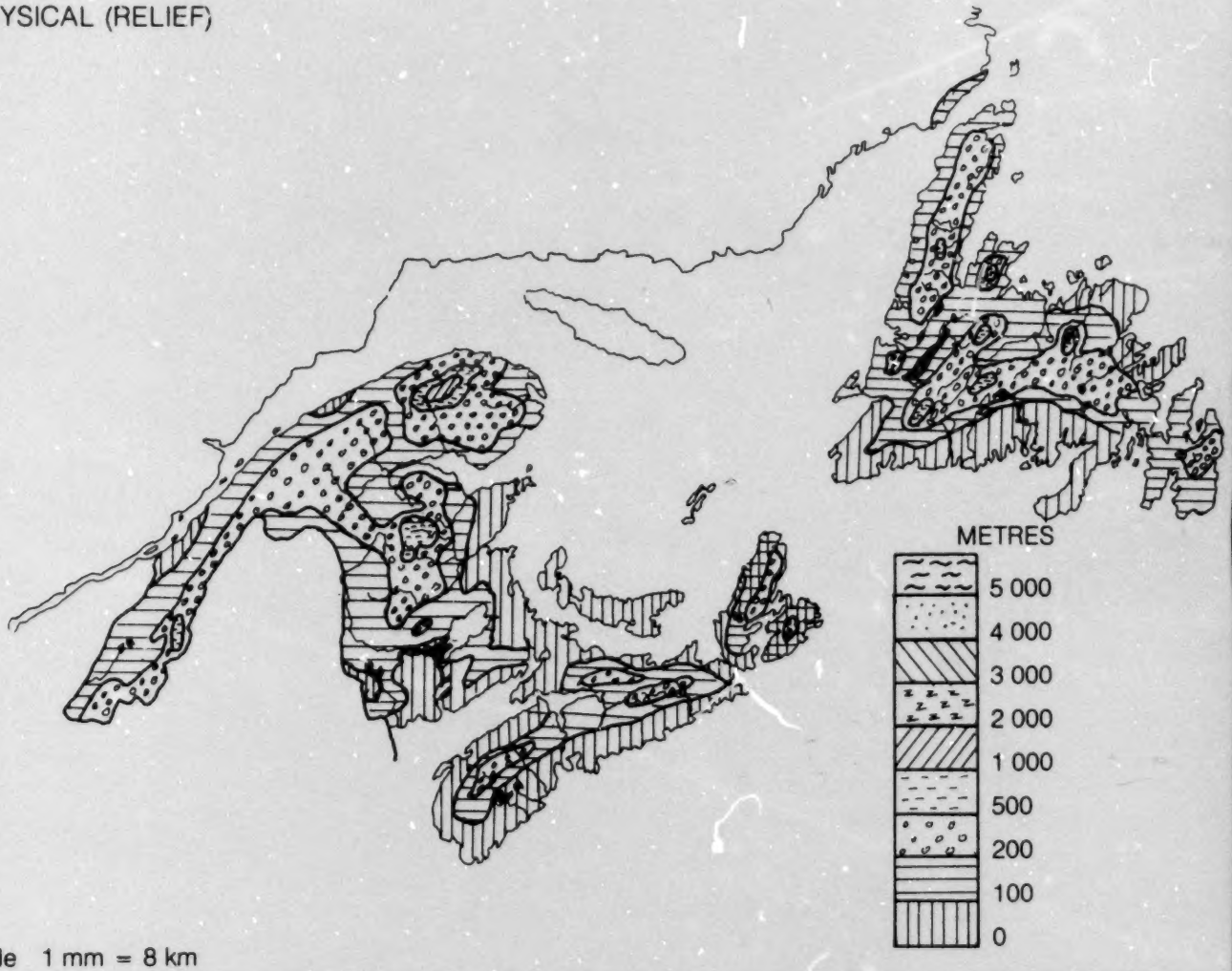
NATURAL VEGETATION



Scale 1 mm = 8 km

APPALACHIAN CANADA

PHYSICAL (RELIEF)



Scale 1 mm = 8 km

APPALACHIAN CANADA

POPULATION CENTRES (URBAN)

Scale 1 mm = 8 km

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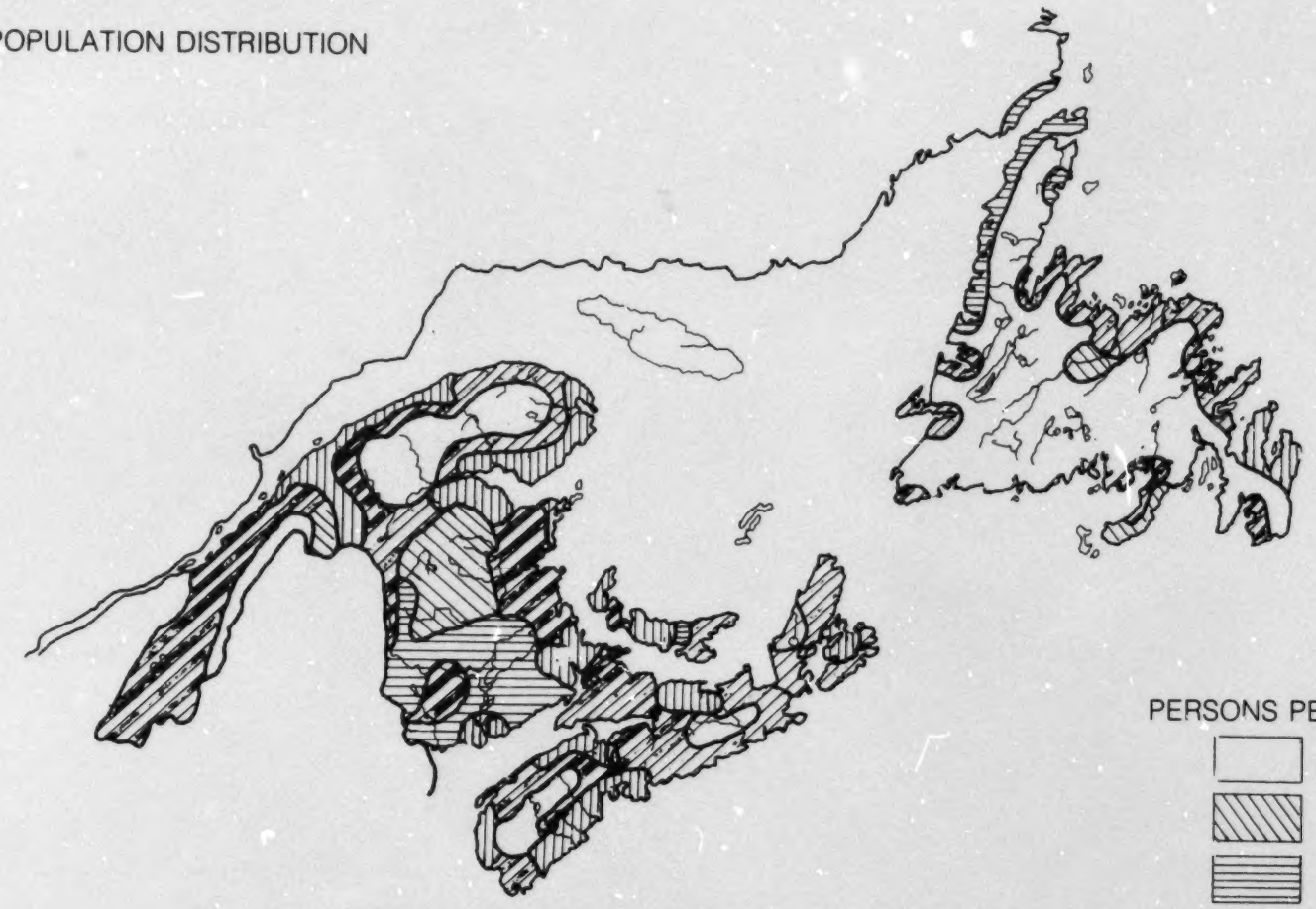
APPALACHIAN CANADA

POPULATION DISTRIBUTION



Scale 1 mm = 8 km

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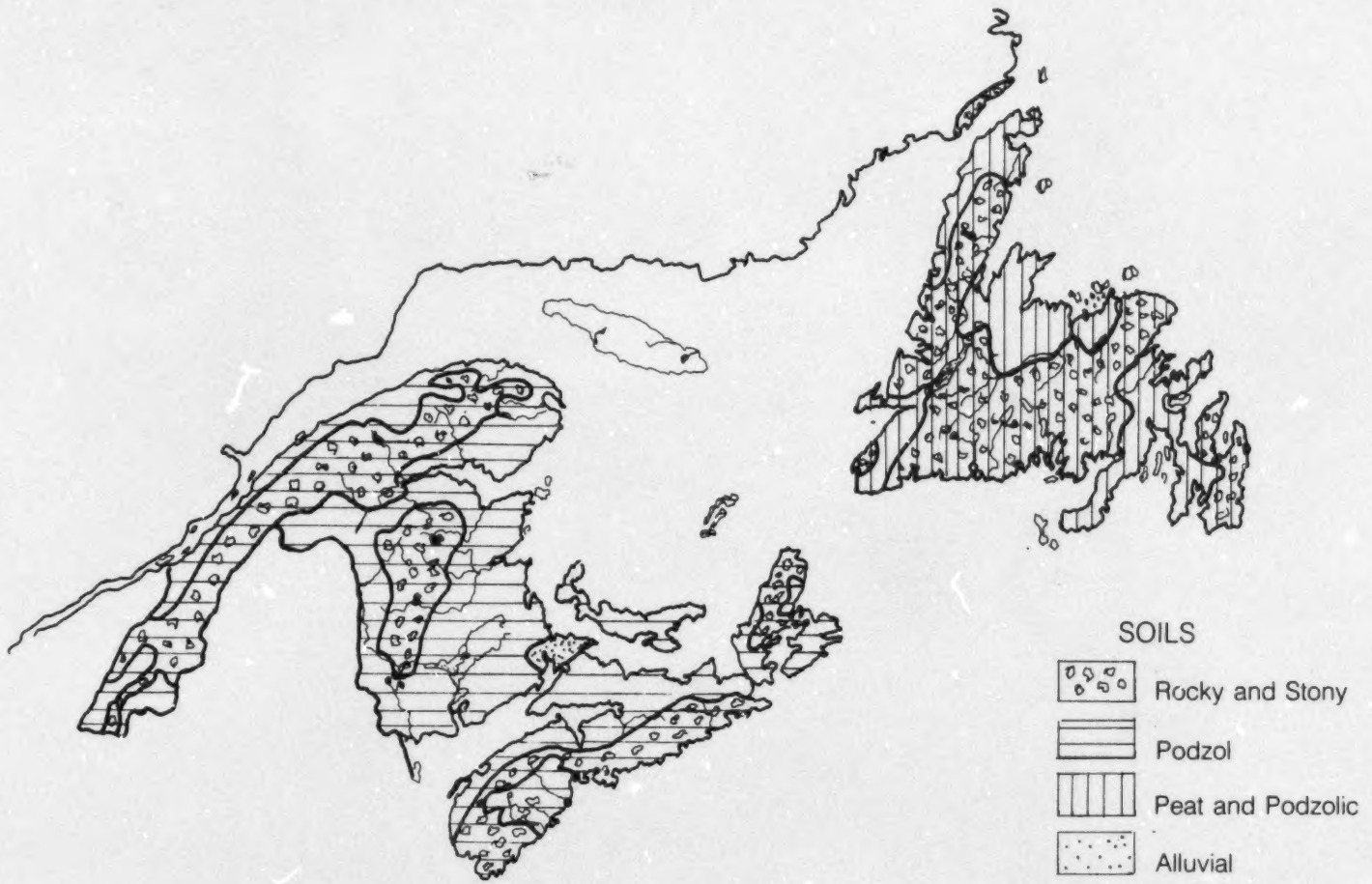

Scale 1 mm = 8 km

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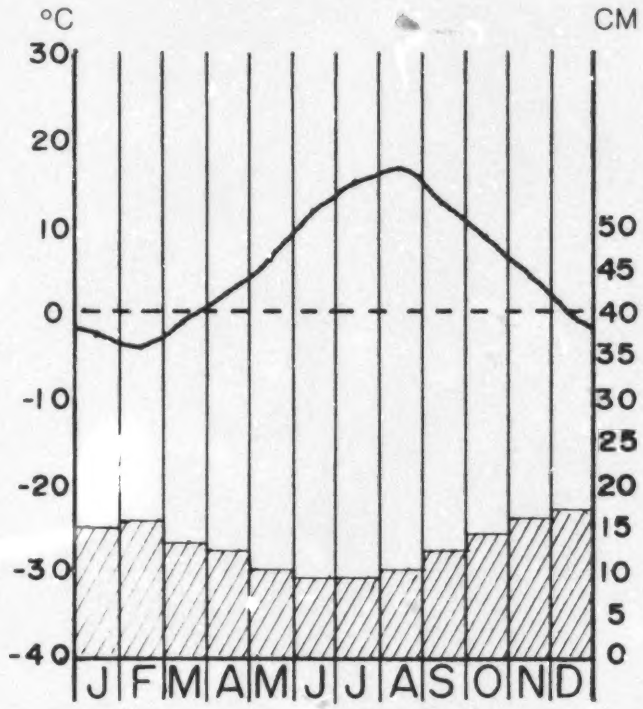
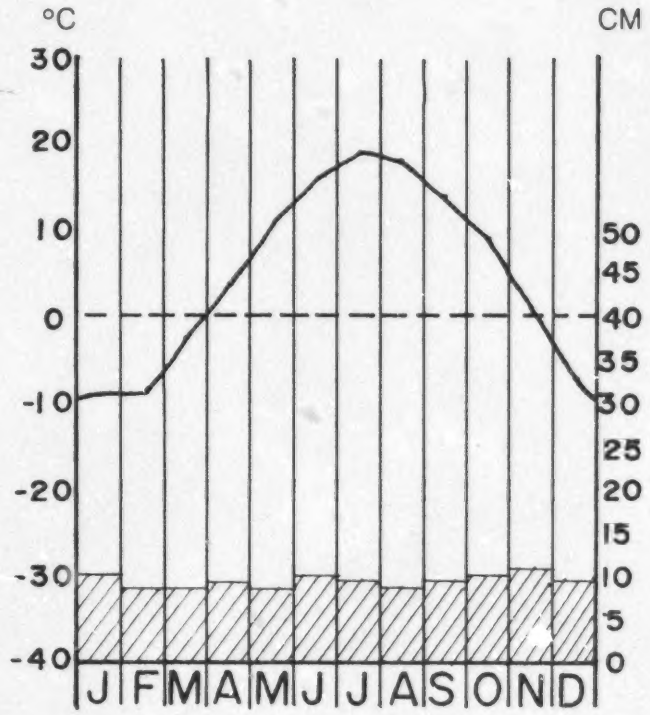


ST. JOHN'S

BAR — PRECIPITATION

LINE — TEMPERATURE



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